

Trancalla Measurements

Mostly San Diego
and other Published

= large form (possibly 8 specimens)
Humerus

Mausalla

	Length to internal condyle	Length to distal edge of deltoid crest	Length to tip of ectepi- condylar process	great. breadth across prox. end	great. Depth shaft	great. breadth across distal condyles	Ht. ectepi- condylar process from internal condyle (distal end)
LAM '2207	—	53.1	65.7%	18.9	10.4ap	—	—
" '2304	78.7	52.0	64.8	18.2	10.6	7.0	16.8
TYPE (cast)	75-76 cast	51.9	61.7	19.3	11.5	—	—
Howard	71.0	48.7	58.2	18.4	10.5	6.8	15.8
Miller 2281	66.6	44.0	—	—	—	6.0	13.8
" 2218	65.0	43.7	—	15.7	9.8	6.1	13.7
LAM '2096	63.7	42.2	52.3	15.5	10.0	6.1	13.2
" '2292	63.1	43.6	52.0	15.5	—	5.1ap	13.1
" '2303	62.7	42.1	50.8	15.4	9.0	6.1	13.5
" '2219	62.0	41.8	50.2	15.0	9.5	6.2	12.8
" '2094	61.2	42.2	50.0	—	—	5.5ap	12.8
" '2206	58.7	41.3?	48.3	—	—	—	13.0
Miller 2269	56.4	39.5	—	14.2	—	5.4	11.3
LAM '2230	—	—	—	—	11.0	—	—
" '2228	—	—	—	—	—	6.4ap	16.8
" '2296	—	—	—	—	—	6.6	16.3
Miller 2220	—	—	—	17.9	—	—	—
Miller 2270	—	—	—	—	—	7.3	16.9
LAM 2230	—	41.5	50.5?	15.0	—	—	—
LAM 2077	—	—	—	15.1	—	—	—
" '2319	—	—	—	—	10.0	—	14.3
" '2066	—	—	—	15.2	—	—	—
" '2289	—	—	—	14.6	—	—	—
" '2064	—	—	—	17.1	—	—	—
" '2318	—	—	—	15.3	—	—	—
" '2080	—	—	—	—	10.0	6.1	13.9
" '2183	—	—	—	—	—	5.9	13.1
" '2135	—	—	—	—	9.7	—	—
" '2062	—	—	—	—	—	—	13.7
" '2231	—	—	—	—	9.6	6.1	15.6

In addition there are 10 fragmentary bones which are obviously of the small form, large Making totals as follows

Large - 10

Small - 30

large in ratio of 1:3 with respect to small

plus whatever Padua has which are not enumerated in this list (at least 6 specimens)

Small in at least a 3:1 ratio (probably more because Padua's unenumerated specimens are probably all small.

See later sheets (Oct. 1960)

Dec. 1965
Truncatella ulna

S. D.	gn length	int length	max depth int.	max sz cotylae	ln sh	depth sh												
1095B 6926	26.5	23.3	7.4	5.2	3.4	5.15												
2497	25.6	22.7	7.9	5.7	3.3	5.8	} small											
49? 2497	27.0	23.45	7.6	5.35	2.9	5.0												
2552	25.3	22.2	7.5	4.97	3.2	5.6												
2439	27.3	23.4	8.2	5.4	3.3	5.6												
2982	26.1	22.6	7.6	5.4	3.0	5.3												
75? 2179	25.35	22.5	7.4	5.25	2.9	4.6												
unmarked	30.8	27.3	8.9	6.3	3.3	6.0												
2323	29.7	25.9	9.3	6.6	3.7	6.2												
2284	—	25.0	—	—	—	—	} large											
2064	—	29.6	—	—	3.8	6.8												
2248	—	—	9.1	6.6	—	—												
45? 2335	—	25.7	—	5.97	3.35	5.9												
Laguna Hills loc. 65121	29.7	25.6	9.2	6.6	4.2	6.1												
loc 65121	30.4	26.4	9.1	6.35	3.9	6.1	} = large S.D.											
loc 65121	30.4	27.1	9.3	6.07	3.8	5.7												
loc 65120	—	27.0	8.57	6.45	4.0	6.3												
loc 65120A	—	27.0	8.4	6.4	3.8	6.1												
" " A	—	24.0	8.1	5.4	3.6	4.9	} possibly rep the small ones of San Diego											
" " A	—	23.3	7.7	5.5	3.2	4.95												

See next sheet for Cedros Island *ulna* meas. detail

gn length	int length	int max depth	max ln	ln sh	depth sh	
32.5	31.8	10.3	7.2	4.2	6.9	} " bones } = large S.D. +
28.7	28.5	8.9	6.2	3.7	5.8	

Maucaallinae measurements re: San Mateo fin Prumaucaella

	San mateo fin	max. maucaella L. 277.8	max cedrosensis	M. calif.	P. finis			San mateo fin	M. dist.	M. cedros	M. calif.	P. lag.	P. wet.					
tarsometatarsal length	47.5	43.6	42.0	39.3	51.8	Carduometa												
6 br. prox	12.1	10.7	10.9	9.9	13.1	Length M1 pincer		15.0	15.5	16.0	17.1	14.0	15.7					
2 br. dist	11.8	8.8	9.3	9.3	13.1	Depth M1 to trochlea		11.7	11.0	11.1	11.2	11.9	12.1					
least br sh.	6.1	5.45	4.4-5.6	4.8	7.0	Br prox trochlea		5.2	—	—	—	5.0-5.2	5.4					
ht 1st br above dist	13.7 5.1	12.5 5.3	?	?	4.8	Br x depth M2		4.1/4.0	3.7	3.8	3.4	4.7/4.5	4.2/3.9					
Ratio ec	43.2%	40.2%			35.6%													
						Br. prox ulna		7.7	6.6	7.2	6.5	—	7.5					
Length Tibiotarsus	105.1	98.5	839	87.5		Depth prox ulna		11.1	9.3	10.2	9.9	—	11.2					
Br dist (ant)	13.5	10.7	9.5															
Depth dist exp	12.0	10.0				Coracoid br. coracohumeral surface		6.3				6.4	6.3					
" " int	12.5	10.8				length granse		11.7				8.2	11.7					
mid sh br	7.3	7.4		6.1														
mid sh depth	4.6	5.0				Humeral length pincer		20.8										
						max. humeral length		20.3										
vcamp 95119 Scapula 9 br. prox	13.9	13.0				prox br.		20.3			19.4		22.2					
br x depth gn	6.8x3.3	6.9x2.8				br/depth gn		5.3/10.0			4.7/10.2							
						Br. dist troch length		8.0				7.7	8.5					

Truncella milleri
T. budarzi
Nov 14, 1969

S.O.	length to max artic	Br dist	rt. Depth dist both		least to sh dist	length int cotyle to int cond	max artic br,	Ratio br to br dist.	#	Left length to max artic	Br dist	depth dist (both)		least to sh (dist)	length int cotyle to int cond.	max br, (artic)	Ratio Br sh to br dist		
Findy 1075 2209 RT	71.9	7.1	7.3	int 7.3 ext 7.3	4.3	70.8	—	6.05 ⁹⁰	1080 2620	72.4	7.35	7.3	int 7.1 ext 7.4	4.8	71.7	6.9	6.55 ⁹⁰		
1051 2280 RT	77.3	7.0	7.3	int 7.5 ext 7.1	4.4	76.6	—	6.25	1080 2549	76.7	7.5	7.7	ext 7.7 int 7.7	5.0	76.1	7.1	6.65		
Findy 2053 RT	74.4	7.3	7.2	int 7.2 ext 7.5	4.8	73.6	6.9	6.55	2134	78.5	—	—	—	4.1	77.5?	7.1	—		
2478 RT	76.3	7.5? Broken	7.5? Broken	ext 7.5 —	4.3	75.3	7.2	?	Broken 2451	—	7.7	7.35	ext 7.2 —	4.5	—	—	5.85		
1228 RT Findy 2259 RT	76.1	7.5	7.5	int 7.6 ext 7.6	4.3	75.5?	6.8	6.8	2070	—	7.25	6.9?	—	4.0	—	—	5.5?		
2479 RT	—	7.9	7.1	int 7.2 ext 7.1	4.6	—	—	5.8	2510	—	6.9	7.1?	—	—	—	—	—		
2100 RT	—	7.5	7.5	ext 7.5 int 7.5	—	—	—	—	2479	—	7.9	7.8?	—	—	—	—	—		
1080 2089 RT	—	7.1?	—	int 7.5	4.5	—	—	6.3?	2108	—	7.2	7.2	7.2 ext 7.2 int	4.7	—	—	6.4		
2089 RT	—	7.1?	—	—	—	—	—	—	2671	—	6.9	—	—	4.1	—	—	5.95		
Broken 2088 RT	73.9 (Broken)	6.9?	7.4?	int 7.4 ext —	4.3	—	—	6.2?	2575	—	6.9	6.9?	—	4.8	—	—	6.95		
1072 RT 2345	—	7.5?	—	—	4.6?	—	—	6.1?	2312	—	—	—	—	4.3	—	—	—		
2071 RT	—	6.8	6.5	int 6.6 —	4.2	—	—	6.2	2222	—	—	—	—	4.4	—	—	—		
2635 RT	—	6.5?	—	—	4.4	—	—	6.75?	2510	—	—	—	—	—	—	—	6.9		
2085 RT	—	—	—	ext 7.1	4.4?	—	—	—	2524	—	—	—	—	—	—	—	—		
2218 RT	—	—	—	—	—	—	—	—	2524	—	—	—	—	—	—	—	—		
2434 RT	—	—	—	—	—	—	—	—	2479	—	—	—	—	—	—	—	—		
2345 RT	77.5	7.4	7.4	int 7.4 ext 7.4	4.7	7.0	7.0	7.0	2479	78.5	7.5	7.8	—	5.0	77.5	6.8	6.85		
2270 RT	—	7.3	6.8	int 7.3 ext 6.9	4.4	—	—	—	2479	72.0	6.5	6.5	—	4.0	71.0	7.1	5.85		
2281 RT	—	—	—	—	4.7	—	—	—	2270	—	—	—	—	4.3	—	—	—		

Truncalla diigena
fibriata Nov. 4, 1969

[illegible]

9.3
9.3
92

55 51.2

$V = \text{large}$

Humens

1950

	a	b				c	ht	too much long at end of spare bit del. had T. del. tub.	ba																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																		
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1957

[illegible]

Humuli *g. nancalla* from San Diego (large)

[illegible]

Humerus

ulna

	length to cond.	br prox	br dist	br sh depth	depth sh	Net ect epi cond. to cond.
2269	56.4	14.3	5.3	3.4	7.8	11.3
2096	61.3	14.5?	5.3	3.7	8.2	13.0
2216	65.1	15.1	6.1	3.9	?	13.2
2281	66.5	—	6.0	3.8	9.0±	13.8
2220		17.8				
2220		15.5				
2066		15.1				
2066	—	17.5	—	4.1	9.5	—
2077		15.4				
2098	—	18.5?		4.6?	10.8	16.6?
2270			7.3			16.8
2135	—		5.3	3.7	9.6	12.7
2080	—		5.9	3.9	10.1	13.3
2062	—		5.7	—		13.8
2062	—		5.8	—		

Type

19.5

5.0 11.2?

15.4
8/1252
3/45
40
5.12

Mancallan

Ulven None from Padre

	Depth to top	Diff to	Right b dist	b max	b dist	Diff max	ratio to													
M ^s 2257 new	26.4 ^x	6.3	7.1	5.6 ^{ap}	4.2	—	20.0 ⁹⁰	31.6	5.0											
M 2287 new	27.0 ^x	6.2	7.8	6.1	4.7	—	22.9 ⁹⁰	28.6	.6											
M 2298 new	—	—	—	6.0	—	—	—	28.0	1.0											
S 2258 new	—	—	6.5 ^{ap}	—	—	—	7	27.0	.6											
L 2323 new	28.0 ^x	6.5	8.1	6.7	5.2	9.4	23.2 ⁹⁰	26.4	2.0											
S 2082	24.4 ^x	5.4	7.1	5.6	4.4	8.2	24.1 ⁹⁰	24.4	.5											
L 2064	30.6 ^x	7.1	8.8	6.7	5.4	9.5 ^{ap}	22.4 ⁹⁰	23.9	.6											
M 2069	24.6 ^x	5.9	—	—	—	—	—	23.3	2.3											
S 2101	20.5 ^x	5.1	6.5	—	4.0 ^{ap}	—	—	21.0	—											
S 2079	23.3 ^x	5.7	7.0	5.1 ^{ap}	4.0	7.6 ² ent	24.4 ⁹⁰	—	—											
S 2179	23.9 ^x	5.0	6.4?	5.5	—	7.7	20.9 ⁹⁰	—	—											
L 2248 new	—	6.4	—	6.7	—	9.2	—	—	—											

25.9
20.7
23.3
18
53
41
47
41
46

L			R	
comp	ini	Comp	ini	
11	11			Large
11	11	1		Small
9 ¹¹		1		M

30.5 - 21 = 9.5 mm range

31.6 - 26.4 = 4 (5)

24.4 - 21 = 3.8 (4)

30.5 - 27.1 = 3 mm range (3 bones)

26.0 - 21 = 5 mm " (4 bones)

31.6 - 3
28.6 - .6
28.0 - 1
27.0 - .6
26.4 - 2
24.4 - .5
23.9 - .4
23.3 - 2.8
20.5

Uma

29.7
29.8
24.8
27.0
4)1113(27.8
31

	Length to inter cotylar ridge	a Length to posterior border of inter cotylar ridge	d Depth distal end (est.)	c Depth proximal end	b Depth proximal end on external edge	da	e Breadth across proximal cotylar	ec	eb
L.A.M. 2064	31.6	33.3	8.0	9.6?	10.4?	24.80	6.7?		66.90
" 2323	28.0	29.6	—	9.4	10.3		6.6	70.290	64.90
" 2069	28.5	—	—	—	—				
" 2287	27.0	28.4	7.1	—	9.0?	25.090	6.0?		
" 2257	26.4	28.0	—	—	—				
" 2082	24.4	26.0	6.0	8.0	8.9	23.190	4.8	60.090	54.90
" 2179	24.0	25.4	5.8	7.5	8.2	22.890	5.4	72.090	66
" 2079	23.5	24.7?	6.4	—	8.0?	25.990			
" 2101	22.40	—	5.5?	—	—				
" 2248	28.4	—	—	9.1	10.2		6.7	73.590	65.690
" 2334	27.92	—	6.8	—	—		—		
" 2497	25.8	26.8	6.0	8.1	8.4		5.5		
" 2439	25.8	27.5	6.5	8.6	9.0		5.5		
" 2499	24.1	25.8	6.2	8.2	9.0		5.8		
" 2552	24.0	25.3	6.4	7.6	8.3		5.1		
" 2342	23.6	—	5.9	—	—		4.9		
" 2484	25.2	26.3	6.3	8.3	8.7		5.2		
" 2556	23.7	25.0	5.8	—	—		5.4		
Coronated	25.80	24.2	8.2?	10.0	10.7		6.7	67.90	

Radius
Length
inner
radius
arc

2486 28.2 29.7 6.5
2579 28.0 29.8 7.3
2632 23.8 24.8 4.8

using lesser length

Range 31.6 - 23.3 = 135.90
31.6 - 22 = 143.90
24.4 - 22 = 111.90
28.0 - 22 = 127.90

using
greater
length

Range 33.3 - 24.7 = 135.90
29.6 - 24.7 = 120.90

Maucella carpus

Maucella alba
alba

	a	b	c	d	e	Ratio														
	overall length	length M1	Bs. prox trach	Depth prox thru M1	Depth below M1 across M3	Ratio Ba														
coronado Mar																				
# 2578	41.4	17.8	4.8	11.0	—	43%	X	2064	33.0?	31.8	—	29.7	9.8	7.8?	6.5	5.3	6.9	30.9		
San Diego																				
# 2541	37.5	15.5	5.0	11.4	8.5?	41%		2072	26.2	24.6	26.0	23.2	8.7							
								2497	25.6	24.0	25.9	23.2	8.8	6.3	5.8	5.6	5.5	21.4		
# 2542	35.8	15.5	4.7	11.0	7.8	43%		2497	26.7	25.3	27.2	25.7	8.4	6.0	5.4	5.3	5.1	19.1		
coronado Mar																				
# 2	—	17.6	5.0	11.8	—			2552	25.5	24.0	24.5	22.2	8.3	6.7	5.0	4.2	5.8	22.7		
Newport																				
# 2583	—	17.0	5.2	11.4	—			2179	25.5	24.0	25.0	22.7								
# 2305	—	15.0	4.6	10.3	—			2558	24.8	24.0	—	22.3								
# 2068	29.7	12.6	4.0	8.8	6.6	42.0		2079	24.6?	23.7	—	22.2								
# 2068	29.7	12.6	4.0	8.8	6.6	42.0		2484	26.4	25.2	26.0	23.8	8.9	6.4	5.3	—	6.1	23.1		
# 2650	33.0	14.0?	4.2	—	—			2342	—	23.2	—	—								
# 2066	35.0	15.5	4.0	—	—	44.0	X	2323	30.0	27.9	29.8	26.0	10.4	—	6.6	5.2	6.4	21.3		
# 2060	—	—	4.3	9.6	—			2287	28.5	26.9	—	25.0		7.0?			6.1	21.4		
								2334	—	—	—	26.2	—				6.0			
								2439	27.5	25.6	27.2	24.2	8.9	6.7	5.7	4.2	5.8	21.09		
								2580	—	—	—	—	10.6	—	6.7	—	6.6			
								2248	—	—	—	—	10.2	—	6.6	—	—			

Maucalla Caipometacarpus

1950

	depth max a	length max MI	hr time	length trend MI	gr length	ht prox above symph int	bw
Cornedellman	11.9	17.4	5.2	21.0	—	11.3	94.8%
S 2068	8.9	13.6	4.2	15.7	29.0	9.5	106.8%
L 2068	10.5	15.0	4.2 ^{ap}	18.0	—	—	—
2060	9.8	10.5	4.3	18.0	—	10.1	103.0%
S 2092	8.7?	—	—	—	—	—	—
L 2060	—	15.5 ^{ap}	—	19.0 ^{ap}	35.1	11.1	—
L 2223	10.7	—	4.4	—	—	10.0	93.5% ✓
to mt L 2213	9.6	14.3	4.2	18.0	35.1	10.3	117.0
S 2245	9.4	—	3.7	—	—	9.6	102.0
L 2305	10.9	15.4	5.0	18.8	—	11.4	104.2
Miller 2281	9.1	14.5	4.0	—	31.7	9.1	100.0

9.95
1

6) 110.5
15.4

Cornedellman
2583

11.6 16.8 5.3

2578 11.0 17.8 4.8

41.3

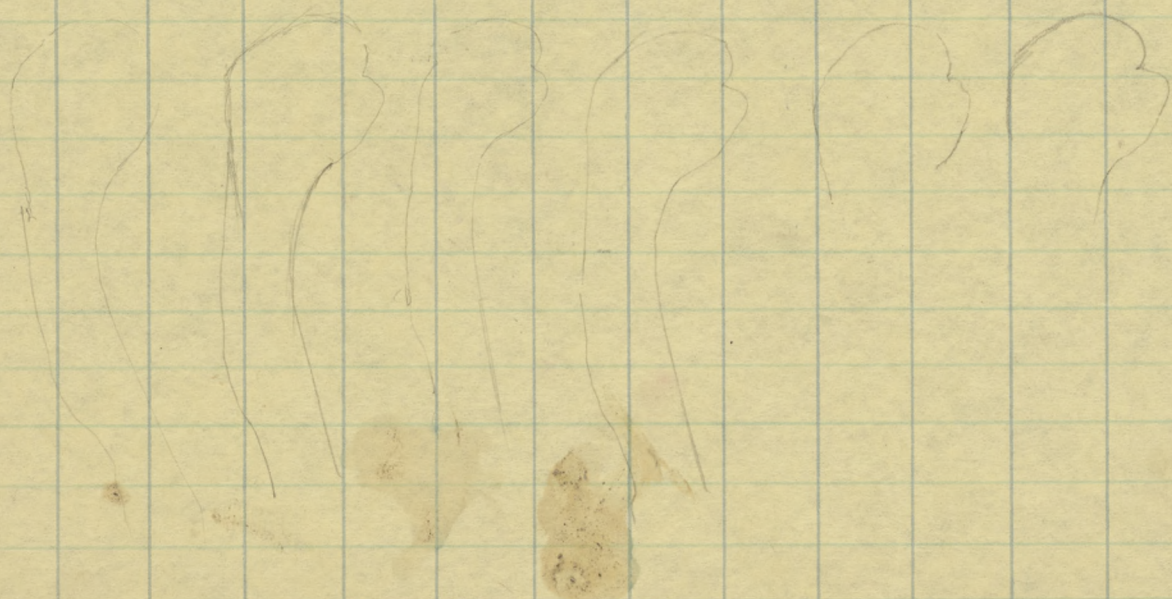
Depth max
10.9 - 9.6 (6) 1.3 mm range
9.4 - 8.7 (4) .7 mm range
Length trend MI
19.0 - 18.0 - (4)
15.7 (1)
Ht prox
11.4 - 10.0 (5)
9.6 - 9.1 (3)

2277
2288

Manicallia caepus

a b c d e f g h i

	great hairs	Leaves int side 55 symph M1	Length M1	Depth head Hem M1	Br sh below M1	Depth sh below M1	Leaves symph	ht head int.	Br trunk of head	Petio cb	dc	ef
Newport 2036 Miller	est. 39.5	33.2	17.6	11.8	3.9	5.0	—	10.6	5.0	53.0	67	78
SO caepus	32	29.1	14.5	9.0	3.0	3.8	4.1	9.5	4.0	50.0	62	79
La mes 2068 SO	29.9	25.8	12.8	8.8	3.0	—	4.3	9.5	3.9	49.4	68.7	—
2069?	—	—	15.1	10.4	3.6?	4.4	—	10.5	4.0	—	69	81.7
with 2060	—	—	14.5	10.0?	—	—	—	10.1	4.3	—	69?	—
2060	35.10	29.7	15.4	—	3.6?	4.1?	5.0?	9.6	4.09	52.0	—	88?
3	970											
	32.3											



Manacalla

1957

San Diego except as indicated

	a	b	c	d	e	f	g		Depth below head at nuchal pt	Depth prox. at max symph	Ratio b to a								
	greater length	length max. curved I	Br max trochlea	Depth across M1-M3 below M1	Depth head from M1	Br sh M2	Length to edge distal symph.												
complete 2068	29.8	12.6	4.0	6.6	9.1	3.1	25.7		8.3	8.9	41.9								
nailed 2281	31.7	14.5	4.0	6.5	9.1	3.0	27.6		2	?									
new complete 2060	35.2	15.3					29.3												
new 2542	35.6	15.5	4.2	7.7	11.2	3.7	30.0		10.0	10.4	43.2								
new 2541	37.2	15.4	5.1	8.5	11.0	3.8	31.5												
new 2060	—	—	4.5	—	9.9	—													
new 2068	—	15.0	4.1	—	10.5	3.4													
2305	—	15.2	4.7	—	10.7	—													
2247			3.7		9.1														
2092	—	—	—	7.0?	—	3.2													
2223	—	—	4.3	—	10.0	—													
mt. 2213	35.1	14.3	4.2		9.6														
Cor. del Mar 2033	41.5	17.7	5.1	—	12.0	3.9	33.2		11.3	11.4									
2578	41.3	18.0	5.0	—	11.2	3.3	33.2		10.4	—	42.8								
2583	—	16.6	5.3	—	11.4?	3.7													
2625	—	16.5	4.8	—	—	3.9													

36
31 081
9
18

Manilla 790

Henners

Sum 50.3
55.7

Tibia

[illegible]

Maucalla - San Diego

1955

Job analysis of curatorial status

mean
in
1950

mean
in
1950

Tubia

Carroll

Carroll

Tasari

mean

2504 63.4

2553 63.6

2480 61.3

2427 63.2

2480 66.6

2326 63.7

381.8

2481 74.5

2355 77.6 + -

2481 80.7 -

230

150

5) 386

no #
Sept. 1960

Type

72.2

75.76

2304 78.7

14 71.0

149.7

2206 58.7

2096 61.2

2096 63.7

2292 63.1

2303 62.7

2219 62.0

Miller 2264 56.4

Miller 2218 65.0

Miller 2281 66.6

559.4

381.8

15) 9412 (62.7

90

41

30

112

105

2477 92.3

2308 92.5

from 1950 2125

92.6

2550 82.5f

1950 Miller 2294 91.4

5) 4513 90.2

1950

2083 74.6

2134 78.7?

2478 76.6

2286 77.5

1950 2209 71.7

1950 2177 80.4 +

1950 2086 73.4 -

7) 5329 76.1

49

42

1950

2310 49.1

1950 2067 51.3

2422 49.3

2498 55.5?

1950 2290 48.6

1950 2083 47.4

6) 3012 (50.2

2559 40.7?

1950 2229 40.7

2276 39.8

2338 40.0

2555 39.6

2498 40.0

6) 240.8 (40.1

2541 37.5

2542 35.7

Cor. del mean 2578 41.4

2498 55.5?

2290 48.6

2083 47.4

6) 3012 (50.2

2559 40.7?

1950 2229 40.7

2276 39.8

2338 40.0

2555 39.6

2498 40.0

2552 33.5?

Cor. del mean 2380 28.8?

2064 30.9

Cor. del mean

2280 41.7?

2178 43.7

2) 84.7

42.3

2488 34.7

2548 32.6

2327 36.1

2499 37.3

4) 1407

351

2155 42.3

2508 46.2

94.1

2097 50.2

3) 144.3

av. 48.1

Sept 30, 1953
Leucosticte maculosa Bonin

71.8
 29.2
 2131.0
 65.9

Hummer
 greater
 luteus

corn

tilen

tann

car/m

win

R 2304 ✓	78.7	mt 2243	42.6	2083	74.2	mt 2177	38.3	leader no #	37.4	2323	30.1
H ✓	70.8	2310	49.9	2308	92.3	2178	43.7	leader no #	35.6	2287	28.7
2096 ✓	64.5	2290	49.3	mt 2177	80.8	no #	32.7	2068	29.7	2064	33.2 ✓
2292 ✓	63.8	2067	52.2							2082	26
2427	63.8	2224	41.3							2174	25.5
2214 ✓	62.5	2087	48.7								
2096 ✓	61.2	2276	39.7								
2326 ✓	64.6	2208	39.2								
2206 ✓	54.2		41.2								
2442 ✓	63.8		40.2								
2303 ✓	63.8		42.2								
9) 567.2											
63.0											

int. cond
 meas. 62.7

To meas. carefully
 (2) hums 2326

Thaulella
Circoid

none to add from Pardue

1950

	Length	Depth front	Depth top pinna	Depth pinna to int dent	Depth crest to crest of central lobe of ventral fin	Depth nucle
✓ 2067 ^{ad}	51.7	7.1/4.5	11.4	36.5	34.1	6.3
✓ 2310 ^{new}	49.8	7.5/3.1	10.3	35.6	34.0	6.1
2184	—	6.9	—	36.6	34.0	—
2242	—	—	—	—	33.9	—
✓ 2290 ^{new}	48.4	6.4/4.1	9.1	—	33.4	4.9
✓ 2082 ^{ad}	47.1	6.5/4.0	8.7	35.1	32.4	5.1?
2243 ^{new}	41.4	6.4/3.7	9.5	29.8	27.5	5.1 S
S ^{ad} 2229 ^{new}	40.7	5.8/4.0	10.0	—	28.3	5.1 S
TO MT 2208 ^{new}	38.7	6.2/2.3	—	28.6	26.5	4.4 S
2321	—	6.2	8.5	—	—	5.1
L 2269	—	7.2/4.7	—	—	—	6.5
2208	—	6.5/4.0	—	—	—	5.0
S ^{ad} 2244 ^{new}	39.0	6.0/4.1	—	—	—	5.3
2090	—	5.5/3.0	—	—	—	4.2
2106	—	5.6/3.8	—	—	—	5.1

	L		R	
Comp	one	comp	inc	
III	II	I	I	Long 7
II	III	II	II	Small 9

Length 51.1 - 38.5 = 12.6 mm range

51.1 - ~~48.6~~ (47.1) - ~~2.5~~ (4.0) range (5 spec)

(41.4) - 38.5 - ~~8.4~~ (3.0) (4 spec)

Maurella Peruceri

	a Length from tip to joint back of int. tip distal	b Length from coracoid to middle distal	c width to upper edge scut	d Br short below proc lanceol	e Br scap front	Ratio ca
2310 ✓	49.7 ✓	36.0	19.4	5.5	6.7	39.90
2067 ✓	50.5 ✓	37.5	19.8	5.2	7.0	39.11
2498	—	—	19.7	6.4	7.3	—
2269 ✓	—	—	—	5.2	7.1	—
2242 ✓	55.2 ✓	—	19.8	5.5	—	36.0
2483	—	—	—	5.2	—	—
2474?	—	—	—	5.6	—	—
2290 ✓	48.2 ✓	—	—	5.3	—	—
2184 ✓	—	—	—	5.4	—	—
2087 ✓	48.2 ✓	36.1	16.8	5.0	6.5	34.8
2402? ✓	50 ✓	37.1	18.3	5.6	7.3	36.6
2627	40.4	29.4	15.3	4.9	5.9	37.4
✓ 2555	40.5	—	15.5	4.8	5.8	38.2 ✓
2559 ✓	41.9	30.4	16.3	4.6	5.6	38.9 ✓
2229 ✓	41.9	36.9	15.5	4.7	5.7	37.0
2321 ✓	—	—	14.8	4.8	6.2	—

• = large form

Crab

Maucaillo

[illegible]

1047
2581

Coracacito - maula - San Diego

revised
CO filed

	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o	p	q	r
	length mid head	length mid head to eye	ht. Balen scap facet (mid)	ht. furrow facet	depth below furrow facet	ht. to tip furrow facet	ant. depth new scap facet	length scap facet to mid skull end	70 Ratio etc	70 Ratio 1 to 2	2 to a	d to a	b to a	f to a	c to a			
✓ 2492	56.4	58.5	20.5	7.8	6.3	5.5	7.0	38.7	30.1	70.3		38.6	96.1	27.9	35.1			
✓ pub 2067	51.7	52.9	18.2	8.8	6.1	5.8	6.0	37.8	34.0		12.0	48.0	—		35.2			
✓ u. c. 45863	50.3	—	17.7	8.4	6.4	5.8	6.0	34.4	33.3		12.0	37.7	96.6	32.2	36.0			
✓ 2310	50.0	52.3	18.1	7.7	5.8	5.5	7.3	36.2	33.3	75.3		49.3	96.6	34.5	34.5			
✓ 2422	49.4	—	17.3	8.6	5.8	5.1	5.7	35.7	34.3	67.0	11.8	49.3	96.6	34.5	34.5			
✓ 2290	49.0	—	16.3	6.6	5.7	—	5.5	36.0	35.5	—	11.8	—	—	—	33.2			
head missing 2184	50.7	—	—	—	—	—	7.2	—	—	—	—	—	—	—	—			
✓ monographed 20878	48.7	—	17.5	7.0	5.4	4.5	4.9	35.2	30.2	—	10.9	—	—	—	—			
✓ 2849	48.6	—	16.4	6.7	5.4	—	5.7	36.2	31.2	62.0		45.1	—	—	—			
✓ u. c. 46028	44.8	—	16.3	7.2	5.0	4.5	5.4	32.4	—	—		—	—	—	—			
✓ u. c. 45843	40.5	—	15.3	5.4	5.0	5.1	5.3	28.7	—	—		—	—	—	—			
✓ u. c. 45844	40.8	—	14.4	6.2	5.1	5.1	4.8	29.1	—	—		—	—	—	—			
✓ 2627	39.6	40.4	14.8	5.3	4.8	5.0	5.0	27.5	33.7	89.4	12.0	40.8	108.3	36.4	35.4			
✓ 2229	41.5	42.5	14.1	6.0	4.9	5.3	4.7	30.4	35.5	91.3	11.7	42.0	106.1	38.4	33.0			
broken skull 2335	39.7	—	14.2	6.1	4.5	5.0	5.2	—	31.0	82.0		—	111.1	35.2	—			
✓ 2404	37.3	38.1	14.8	5.2	4.7	4.7	4.7	26.4	—	85.4		—	100.4	35.0	—			
✓ 2334	40.7	—	13.8	—	—	—	5.4	—	—	—		—	—	—	—			
✓ 2557	40.6	—	14.4	6.0	4.7	4.7	4.8	28.4	—	—		—	—	—	—			
✓ 2321	42.3	—	14.7	6.1	4.4	—	5.4	—	—	—		—	—	—	—			
2208	39.3	40.7	13.8	—	—	—	5.6	—	—	—		—	—	—	—			
✓ 2559	41.2	42.3	15.7	5.8	4.8	4.8	5.5	29.4	—	81.4		—	102	34.0	—			
✓ 2498	40.4	—	14.7	6.2	4.9	5.0	5.0	29.5	—	91.9		—	100.4	35.9	—			

average all 44.8
... use 50.8
... male 40.1

2269 6.4
2184 37.2 6.9 ✓
2242 37.1 ✓
2481 35.0 6.3 ✓
2483 32.5 5.2 ✓
2276 39.9 28.4 4.8 ✓

20) 89.69
44.8
4.4

Added U.C. coracoids
Set other meas from U.C. sheets

4 length measurements
62 traps

nos. 45843-44
45863-64
46017 and 46028

✓ = length meas.

July 19, 1964

SD = San Diego

Mancalla carpometacarpus

Eight (omit 49, 2060 + 45842)

Ten carpometacarpi can be measured now for length (San Diego).

From Corona del Mar, one nearly complete, and 3 prox. ^{distal} are available.

At least three of the four ^{from} Corona del Mar ^{are} larger than any from San Diego, ^{at least as shown by length of} and all four have longer process of metacarpal 1. ^{The one complete specimen exceeds in overall length as well.}

On the whole there is better preservation of M3 in all San Diego bones than in those from Corona del Mar, although general state of preservation seems better in the latter. Out of twenty S.D. specimens, M3 is complete in five and projects for at least half the length of M1 in seven others (not counting mounted skeleton, CHECK THIS). It is difficult to be sure, but M3 in SD bones seems to bow outward more and be placed more squarely in relationship to M2 in SD bones; cross section is wider than deep in SD, whereas it is deeper than wide in Corona del Mar bones. Also in the latter, M3 is more internally placed with less indentation below the trochlea; the process of M1 is considerably longer also, 16.6 - 17.7 (Max S.D., 15.2mm)

In this element at S.D., there is not a very clear separation into two size groups, the range 29.7 - 37.1 (min. 127 % of max.). Most of the better preserved specimens are at the upper end of the size range (though those with length measurement are evenly divided 5 to 5).

The process of M1 is of ^{equal} extent below the ^{level of the} proximal symphysis in the Corona del Mar bones (ratio of this distance relative to total length of process, 54.6 - 57.0 % in Corona del Mar, 50 % - 51.9 % in

San Diego) (Cedros, 49 % - 52.2 %)

Cedros Island 4 specimens, length 35.0 - 35.8 suggest

that S.D. series breaks at 37.0 - 35.3 (4 bones) and 33.1 - 29.6 (4 bones)

177/332
177
1553
159
148/276
148
280
2
120/257
252
31
145/317
290
270

35-37 = Large p (592) NMI 14.9-18.2 Depth max 9.7-11.0 and 9.3-10.2 (NMI) 38-41
 29-33 = Small 12 12.5-14.5 8.8-9.5 8.2-9.0 38-41

Californiacampus Naucalla total 2.4

June 3, 1964

	g	h	ag	Ratio	Ratio	Ratio
	from dist. tip M1 & max tip subrad.	width gills at dist. base	Ratio	Ratio	Ratio	Ratio
	Length	Length	Depth	Depth	Br. max	Br. max
	to dist. end M2	from M1	at base of trunk	at base of trunk	trunk	trunk
	Text	M1	M1	M1	M1	M1
	1067	2578	41.2	17.7	11.1	10.4
	pub 1067	2033	—	17.0	11.7	11.2
	1067	2583	—	16.6	11.3	10.3
	San Diego	2068	—	14.9	10.4	9.7
	x 2341	37.1	15.1	10.9	10.1	4.7
	x ^{vc} 45861	35.3	15.1	10.5	10.2	4.5
	2305	—	14.7	10.4	10.0	4.3
	x ^{mt} 2213	35.2	14.3	9.9	9.8	4.6
	2542	35.8	15.4	11.2	9.8	4.6
	x 2060	36.0	15.2	9.7	9.3	4.1
	pub 2060	35.0	15.2	—	—	4.1
	2281	36.1	14.6	9.1	—	4.0
	1067	33.0	14.9	9.5	9.0	4.0
	x ^c 45862	32.7	14.2	—	—	3.6
	x 2825	32.7	14.2	—	—	3.6
	2650	33.0	—	—	—	—
	x ^{pub} 2068	29.6	12.5	8.8	8.2	3.8
	2242	30.7	—	9.1	8.4	3.3
	2223	—	15.1	10.1	9.6	—
	x ^c 45842	30.7	13.3	9.1	8.3	—
	1067	33.6	—	—	—	—
	M=	33.4	—	—	—	—
	1067	33.1	—	—	—	—

unavailable when looks in Cd. Man. not exceed 32 mm length

max depth for sh below 3.8 & 3.0 M1 35 mm length? of 2060

added 1969 45861 (2nd specimen?) max column length? Length 33.2 Length M1 15.4 Depth max 10.9 Ratio 4.8

35.8 M(B) 30.9 S 115.2 55179.0 115.2 33.4 33.1 33.4

131
 448) 563
 448
 1150
 1148
 20
 473) 563
 473
 90
 900
 978
 570

7.19.64

Mancalla Coracoid

Measurements of total length can be taken on twenty (20) coracoids (two as monographed 1949). Eighteen of these have not been recorded including nine that are smaller than those previously available.

The coracoids fall into two groups on the basis of size. There appears also to be one qualitative character that distinguishes the small from the large bones, namely greater height of the furcular facet at its internal edge in the small specimens. It is now evident that the two coracoids measured by Miller and Howard (1949) are of the larger species; ^(at least of maximum in the smaller) hence the proportions presented by these authors of coracoid to humerus etc. (fig. 1, op. cit. are not valid.

The Corona del Mar Coracoid (1 specimen) has even less height to the tip of the furcular facet than the large San Diego coracoids. The head seems less narrowed in middle (looking down from top) also. In internal view, the ridge of the shaft runs medial to the ventral edge of the furcular facet, whereas in the San Diego coracoids it is at the ventral edge; the ventral surface is more excavated just below the furcular facet.

The small San Diego coracoids that are complete have a very attenuated furcular facet with high peak. Of San Diego specimens, nine have the furcular facet essentially complete, 4 large, 5 small

check
furcoracoid
shape

Maugley Corals

(1162) 14 Large
(1237) 25 small

35.0 - 38.7 NT full fact 4.5 - 5.8 Br. 6.6 - 7.8
26.4 - 32.8 4.7 - 5.5 5.2 - 7.2
30.4?

June
1964

	Length mid head mid sternal fact	NT from below pect fact to mid head	Br full fact	Depth below full fact 8) 46.6 5.8	NT full fact at tip	ant- brat depth shaft through scap fact	lower length from scap fact to mid sternal end	Ratio ec	Ratio ea	Ratio eb	Ratio ed	in coracoh. intern	26.4	38.7	176	15
1067 A	—	18.8	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2586	—	19.8	8.7	5.9	5.1	6.3	—	58.6%	—	25.9%	—	—	—	—	—	—
sub 2498	56.4	20.5	7.8	6.3	5.5	6.4	38.7%	70.5	9.8%	27.8%	3.9	2269	6-18.3	—	—	—
pub 2067	51.7	17.9	8.5	6.1	5.5	6.0	37.8	64.7	—	31.0%	4.1	2485	no meas, but abnormally large	—	—	—
2310	50.2	17.5	7.7	5.8	5.6	6.5	36.2	71.4	11.2	34.9%	3.6	2321	6-14.3; c-6.2; d-5.1; f-5	—	—	—
UC 4586	50.0	17.4	8.6	6.1	5.8	6.6	34.4	67.5	11.6	33.2%	3.8	2338	6-14.3	—	—	—
2184	—	—	—	—	—	6.9	37.2	—	—	—	—	2208	a-39.1; g-28.5; b-13.1	—	—	—
2242	—	—	—	—	—	—	37.1	—	—	—	—	2090	no meas but during meas	—	—	—
2422	49.7	16.1	8.6	5.8	5.3	5.7	35.7	61.5	10.6	31.9%	3.6	4584	two	—	—	—
2290	49.0	16.2	8.6	5.7	—	5.5	36.0	—	—	—	—	2106	6-14.8; f-5.1	—	—	—
pub 2087	48.7	16.8	7.0	5.4	4.5	4.9	35.2	64.3	9.2	27.7%	3.6	4584	g-33.1; f-5.6	—	—	—
2481	—	—	—	—	—	6.3	35.0	—	—	—	—	2345	f-5.2	—	—	—
2489	48.6	16.1	6.7	5.4	—	5.7	36.2	—	11.1	—	3.6	6189	no meas, but small eroded	—	—	—
UC 4602	45.0	15.8	6.9	5.0	4.4	5.4	32.5	63.7	9.8	28.2%	—	6457	—	—	—	—
2483	—	14.0	5.2	4.0	—	—	—	—	—	—	—	—	—	—	—	—
2229	41.5	13.9	6.0	4.9	5.3	4.7	30.4	88.5	12.7	38.7%	7	2498	two .. size? badly broken	—	—	—
4584	40.5	13.8	5.4	5.0	5.7	5.3	28.7	105.4	14.1	39.0%	—	2552	no meas " ?	—	—	—
UC 2243	41.4	13.4	—	5.1	—	—	29.4	—	—	—	—	2108	no meas, but small eroded	—	—	—
2555	40.0	13.4	6.2	5.1	—	4.8	29.1	—	—	—	—	2556	" .. " " "	—	—	—
2276	39.9	13.4	5.9	4.7	4.7	4.8	28.4	81.3	11.7	33.4%	—	UC 46017	g-18.7, b-5.3+	—	—	—
2624	39.6	13.9	5.3	4.8	5.0	5.0	27.5	94.3	12.6	35.8%	—	UC 46027	no meas size? frag	—	—	—
2208	38.5	13.5	—	4.6	—	—	28.6	—	—	—	—	—	—	—	—	—
2559	41.2	13.6	5.8	4.8	4.8	5.5	29.4	82.7	11.6	32.8%	—	4584	c-7.0; d-5.4; e-4.4	—	—	—
2498	40.7	14.3	5.7	4.9	5.0	5.0	29.5	80.5	12.3	34.9	—	—	—	—	—	—
no 1	37.3	13.7	5.2	4.7	4.7	4.7	26.4	90.6	12.6	32.8%	—	—	—	—	—	—

scatter diagram
puts in Lamp

July 19, 1964

Mancalla humeri

In 33 specimens of humerus, overall length is possible; on 40 a length from head to distal extremity of deltoid cres (as in Type of *M. californiensis*) is possible. Of the series of 33, the range is 56.4 - 85.2, the min. is 51 % ^{greater than} of minimum. Broken into two groups, the max. is 18 % greater than min.; in ^{small} ~~large~~ group (range 56.4-66.6) and 11% greater in large group. in 300 Great Auk humeri (range 96-114) the max. is 18 % greater.

The maximum humerus is even larger in size than the type of *M. californica*, but differs from the type as noted previously (1949) by narrower tricipital attachment extending less deeply into the pneumatic fossa. The proximal end specimen from Corona del Mar is like *M. calif.* in this character. The distal end specimen from CdM differs from San Diego specimen in less developed ectepicondylar prominence, but more prominent attachment on the external ledge of the shaft (palmar side) between the ectepicondylar prominence and the external condyle. Whether or not these characters of distal end are true of *M. calif.* cannot be determined from the cast at hand.

This figure of max. vs. min. in the large group is based on range of 70.9 - 78.7. There is now, however, one specimen that measures 85.2 mm. in length. This is 20 % greater than min. (70.9)

marked attach. scars in middle of ect epi prox. in C. del Mar humerus
seemingly present on type *M. calif.* so prox. is less of an elongated line, connects
9 prox. to side of condyle slightly more anterior (in San Diego connection well palmed
with no space (high space
in *calif.*
lower space
in *Pranauca*)

147.70	15.1%	143.20
387.7570	56.4	142.203
387	85.2	142.
1830	56.4	610
1548	2880	568
2820	2820	420
2709	600	426

Pranauca
El Toro humerus int. center tricip groove bends
slightly mediad, lig. attach. at int. distal of brachial imp. is
(= ectepicond. prox.)
reduced & more lateral than in *Mancalla* (in *M.* attach. is at prox
tip - int. to prox condyle. Ectepi prox. straight (length 15.3 mm to extend)

Hummer Naucalla from San Diego 1947-1960 ① in millimeter

Oct. 1960

reviewed
April 1964

Length to
internal
condyle
Breadth
proximal end
Breadth
distal end
Length to
end of deltoid
crest
Depth through
deltoid crest
Height
epitricondylar
prominence
Shaft
Br.
Depth

Miller 220 pub. ill.
not measd but
pub. br. part (17.9)

Sh.
Br.
Depth

105 some
measure
can be made
19 unmeasurable

Miller nos	Length to internal condyle	Breadth proximal end	Breadth distal end	Length to end of deltoid crest	Depth through deltoid crest	Height epitricondylar prominence	Shaft Br. Depth	Sh. Br. Depth
✓ 2281	66.6	6.0	44.0	13.8	—	small	pub. ill.	2281 4.0 8.1
✓ 2216	65.1	15.1	6.1	13.2	—	small	pub. ill.	2084 3.2 2.5
✓ 2269	56.4	14.2	5.4	39.5	—	11.4	—	small pub. ill.
2220	17.9	7.1	—	16.8	—	pub. ill.	—	—
2218	65.0	15.7	6.1	43.7	—	13.7	—	small pub. meas.
R 2066	14.7	5.6	40.2	9.6	12.8	small X	pub. ill.	—
R 2066	17.3	—	—	9.2	—	—	—	—
L 2206	58.7	—	5.3	41.3	—	13.0	—	small X left
R 2080	—	—	6.0	—	10.1	13.8	—	small X R dist 3/4
L 2096	61.2	—	5.5	42.2	8.3	13.2	—	small X pub. ill.
L 2096	63.7	15.5	6.2	42.0	9.8	13.3	—	small X left
L 2207	—	—	—	53.7	10.4	—	—	large X left
2230	—	—	—	10.9	—	—	—	large X
2231	—	—	6.0	—	9.7	15.5	—	small dist 3/4 R
2296	—	—	6.9	—	—	16.7	—	small X pub. ill.
R 2304	78.7	18.2	2.0	32.0	10.3	16.8	—	large X Right
L 2303	62.4	15.4	6.1	42.1	9.0	13.5	—	small
L 2219	62.0	15.0	6.2	41.8	9.6	12.6	—	small X left
2314	—	—	6.8	—	10.12	15.3	—	—
L 2292	63.1	15.5	6.2	43.6	8.3	13.1	—	small X left
L 2077	—	15.2	—	—	—	13.8	—	small X R

Unmeasurable specimens San Diego
L pub 2496 probably large? pub left
L pub 2637 small L pub small pub 2065 and dist R 2066 (2) small
L shaft 2676 small dist 3/4 L
L shaft 2206 small dist 3/4 L
R shaft 2084 " shaft 2093 size?
L dist 2251 small L dist 2081 small
L shaft 2501 large 2149 small?
L sh 2230 " large left shaft
R sh 2505 " cart meas but of head large R sh
R sh 2677 " " " " large R sh
R dist 2228 " ? X
L prox 2643 large
R 45847 dist small
R 45848 small
L dist 45857 large
R prox 46029 size small prox R same as
R L cart 2339 small R sh
2643 probably large prox R

shaft
Pneumatic $\left\{ \begin{array}{l} 5.4 \text{ or} \\ 7.7 \text{ depth} \end{array} \right.$ No. 320

Oct 1940

Duplication
SKIP these ✓

10.6.60

abundant but
completing (or nearly)
specimens in order of
size.

[illegible]

Mancalla humerus continued (3)

Oct. 1960

v = large

	Length to internal condyle	Breadth proximal end	Breadth distal end	Length to end of deltoid crest	Depth through deltoid crest	Height of olecranon process	shaft br left		prox	Length thru deltoid	Depth thru deltoid	deltoid end	ht set apart cond.			
^{cornus nos} L 2480	62.6	14.8	5.4	43.2	8.6	13.4	3.3 mm	ob left	R	2318	14.9	—	—	small prox R		
^{cornus nos} R 2480	61.3+	—	6.2	40.8+	9.6	14.2	4.3 mm	ob left	R	2538	15.0	—	—	small x prox R		
^{cornus nos} R 2695	72.2	18.2	6.9	47.6	10.7	16.4	4.3 mm	ob left	R	2280	15.0	42.4	8.3	small x prox R		
^{cornus nos} R 2670	85.2	20.3	8.0	57.0	12.4	19.8+	5.2 mm	ob left	L	2505	16.2	—	—	—		
^{cornus nos} L 2679	71.2	18.2	6.7	47.3	10.5	15.9	4.3 mm	ob left	R	2332	—	—	8.7	5.0	12.5	small x dist R
^{other sheet} L 2679	61.3	15.1	5.3	41.3	10.2	14.7	4.3 mm	ob left	L	2231	—	—	9.6	5.9	15.8	small x same one as on R
^{other sheet} 2504	63.2	15.7?	6.0?	46.6?	—	—	—	—	—	2084	—	—	9.0	5.0	12.0	small v
^{other sheet} L 2206	58.2	—	5.3	41.1?	—	13.0	—	—	L	2675	—	—	9.0	5.8	13.2	small x dist R
^{other sheet} L No #	63.2	15.2	5.5	44.7	9.2	13.0	—	—	R	2539	—	—	9.9	5.9	14.2	small x dist R
^{other sheet} TYPE m. caud.	—	19.5	—	53.2	11.3	11.2	—	—	L	2644	—	—	—	6.4	14.8	small x dist L
^{other sheet} L 2537	—	15.0	—	42.4	9.0?	—	—	—	R	2539	—	—	—	6.3	12.8	small x dist R
^{other sheet} R 2481	—	16.4	—	45.3	9.9	—	—	—	R	2539	—	—	—	5.8	13.3	small x
^{other sheet} L 2496	—	15.8	—	—	—	—	—	—	L	2650	—	—	9.3	7.2	—	small x dist L
^{other sheet} L 2554	—	15.3	—	—	—	—	—	—	R	2481	—	—	10.8	6.7	16.6	small x dist L
^{other sheet} L 2289	—	14.4	—	—	—	—	—	—	L	2481	—	—	10.9	6.5	15.7	small x dist L
^{other sheet} L 2206	—	14.6	—	—	—	—	—	—	R	2432	—	—	10.3?	6.4	15.9	small x dist L
^{other sheet} L 2496	—	17.5	—	—	—	—	—	—	R	2688	—	—	—	6.9	—	large x dist R
^{other sheet} R 2646	—	15.8	—	—	—	—	—	—	R	2294	—	—	—	6.6	16.6	large x
^{other sheet} L 2343	—	15.6	—	—	—	—	—	—	L	2319	—	—	10.1	6.7	—	small dist R
^{other sheet} L 2502	—	15.7+	—	—	—	—	—	—	L	2490	—	—	—	7.0	—	large x dist L
									L	2135	—	—	9.8	—	12.9	small x dist R

caucalla humerus cont'd (4) March 1964

	Length of inf. end	Breadth prox. end	Breadth distal end	Length prox. to distal end	Depth through distal end	Depth through distal end	Height of epiphysis proximal	Shaf Br depth											
L. A. co. Mus. Nov																			
2850	66.5	15.6	5.8	45.3	9.7	15.0	3.7	46.890	entire on 1960	Small X right									
2813	58.1	14.8	5.2	38.7	8.3	10.9	3.4	50.20	entire on 1960	Small X left	TYPE								
6182	73.5	18.2	—	48.7	10.6	—	—	—	entire on 1960	Large X right									
2814	—	—	—	—	10.6	15.6	—	—	entire on 1960	Large X dist 3/4 left									
2824	61.8	15.0	—	44.3	9.3	—	—	—	entire on 1960	Small X left									
6456	—	—	6.1	—	—	13.3	—	—	entire on 1960	Small dist L									
dist 6180	—	—	7.1	—	—	16.3	—	—	entire on 1960	Large dist left									
2892	—	16.3	—	—	9.0	—	—	—	entire on 1960	Large dist left									
6181	—	—	—	—	9.6	—	—	—	entire on 1960	Not entire									
6181	—	—	6.1	—	10.0	12.8	—	—	entire on 1960	Same as on p. 3?									
Dub 2537	—	14.6	—	42.3	—	—	—	—	entire on 1960	Large X prox left									
6180	—	17.8	—	—	—	—	—	—	entire on 1960	Large X prox left									
7731	78.4	18.6	—	54.8	11.8	—	—	—	entire on 1960	Large right									
2842	—	16.3	—	—	—	—	—	—	entire on 1960	Large right									
2819	—	—	—	—	10.0	14.5	—	—	entire on 1960	Small X									
2331	—	20.0	—	—	—	—	—	—	entire on 1960	Large X prox left									
2478	—	19.3	—	—	—	—	—	—	entire on 1960	Large X prox left									
2430	—	—	—	—	11.0	—	—	—	entire on 1960	Large X-left shaft									
2818	—	15.6	—	—	—	—	—	—	entire on 1960	Small X									
2805	—	16.1	—	—	—	—	—	—	entire on 1960	Small X prox L									
2802	—	15.7	—	—	—	—	—	—	entire on 1960	Small X									
2842	—	16.2	—	—	9.1	—	—	—	entire on 1960	Small X prox L									

105 measured
28 unmeas +
133

Large sp. is placed
+ shaft is thicker, these
see these points even
on frag.

Coronado del Mar

2576 Br. prox 18.9

2577 g. depth sh 13.1

depth sh. below

on dist. end 6.9? (broken)

2

1

2

3

sh. Br
4.65
10.2 depth
about 10.2

4.35 12.6
10.2 17.0

Manacalla

Humerus 18 measurements

58.2 - 85.3 = range of 27.1 mm, ^{146%} range of Great Auk (300) 18 mm. ^{118%}

7 large 51.0 - 85.3 = range of 14.3 mm. ^{120%}

11 small 58.2 - 66.4 = range of 8.2 mm. ^{113%}

TYPE estimated at 75 mm. falls into range of large

Tarsometatarsi 10 measurements

34.0 - 43.7 = range of 8.9 mm. ^{125%}

5 large 34.0 - 43.7

^{114%}

15 small 34.0 -

^{109%}

Tarsus 10

46.8 - 58.0 = range of 11.2 mm. ^{123%} Great Auk 6.4 - 7.9 range 15 mm, ^{123%}

6 large 54 - 58 = range of 4.0 mm

4 small 46.8 - 47.3 = " " 0.5 mm

Tibiotarsus 16

71.6 - 92.7 = range of 21.1 mm. ^{129%} (Great Auk range - 200 - 122 - 43 = 21 mm) ^{117%}

A 5 large 91.4 - 92.7 = " " 1.3 ^{101%}

or

B 7 large 80.8 - 92.7 = " " 11.9 hiatus bet. large & small 2.4 mm ^{114%}

B 9 small 71.6 - 78.4 = " " 6.8 ^{104%}

or

A 5 small 71.6 - 82.0 = " " 10.4 hiatus bet. large & small 9.4 mm ^{114%}

Carpometacarpus 6 for length, 11 for length MI + depth of head

length 29.8 - 41.3 = range of 11.5 (138%)

Coracoid (Man)

MI 12.5 - 17.7 = range of 5.2 (141%) ^{123%} small 12.5 - 15.6 = ^{104%} large 17.0 - 17.7 =

Head 8.7 - 11.7 = " " 3.0 (134%)

length 29.8 - 37.2 ^{124%}

2 or 29.8 - 31.7 ^{106%}

4 large 35.2 - 41.3 ^{117%}

Coracoid 13 length,

length 37.3 - 52.3 range of 15.0 mm. = 140%

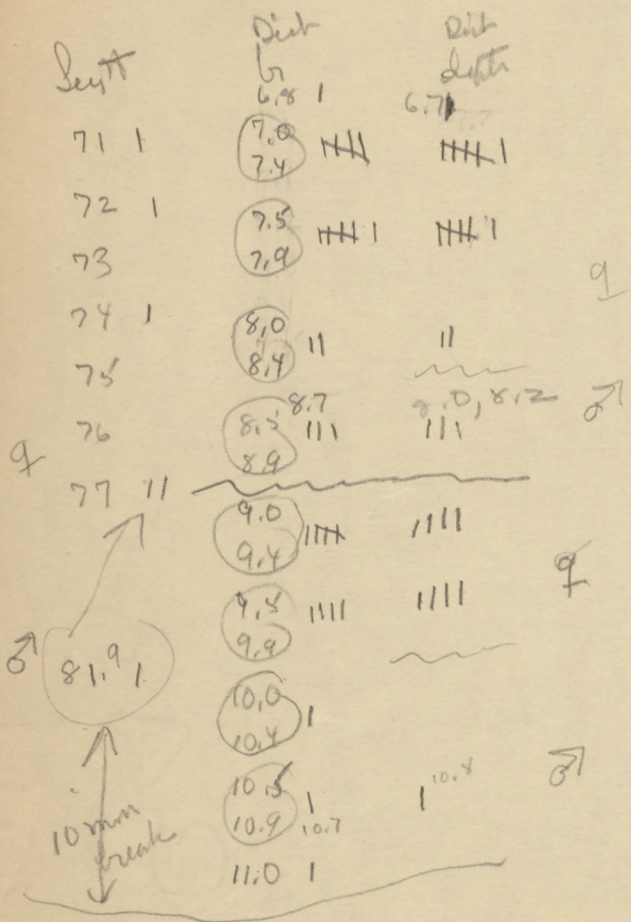
* April 1964 Mawella
Humeus

fibricans

+ *lucifera*

Great auk 122 mm - 143 mm = 21 mm range 200

Mancilla 71 98 = 27 " " 12
71-82 91-98



91 1
92 1
93 12
94 ?
97 ?
98 1

Size range *Maurella baueri*

	Length	Br. prox	Br. distal	Length thru deltoid	Depth deltoid	ht. caud. ped.
Large	85.2 - 71.0	20.3 - 18.2	8.2 - 6.5	57.0 - 46.6	12.4 - 10.1	19.8 - 15.7
Small	67.6 66.6 - 56.4	17.3 - 14.2	6.4 - 5.1	45.3 - 39.5	10.1 - 8.3	15.6 - 11.4

from complete specimens only

Large	85.2 - 71.0	20.3 - 18.2	8.2 - 6.5	57.0 - 46.6	12.3 - 10.3	19.8 - 15.8
Small	66.6 - 56.4	15.5 - 14.2	6.2 - 5.3	44.7 - 39.5	9.8 - 8.3	14.2 - 11.4

Unknowns (incomplete)

	67.6	17.3 - 15.6		45.3	10.1 - 9.9	15.7 - 15.0
--	------	-------------	--	------	------------	-------------

	No. specimens				
Large	6 complete	3 prox.	8 distal	=	17 spec
Small	21 complete	11 prox	15 distal	=	47 spec
?		9 prox	8	=	17 sps?
	24	23	31	BK	81 measurable
					18 unmeas.
					99

Size range based on complete specimens
 Fumeri, Maucalla, S. Diego

	Length	Pray	Dist	Length Deltoid	Depth Deltoid	Nt, celesti.
Large	85.2-71.0	20.3-18.2	8.0-6.6	57.6-46.6	12.4-10.3	19.8-15.8
Small	66.6-56.4	15.7-14.2	6.3-5.3	44.7-39.5	9.8 10.2-8.3 9.9	15.2-11.4

Questionable incompletes

17.5-15.8	6.4-6.0	45.3	10.2-9.9	15.7-15.5
-----------	---------	------	----------	-----------

Large ? 17.5-16.1
 small 15.8

drawing
 87.23
 76.25

cross.
 L 2498
 R 2066
 L 2505
 R 2481
 H 6029

$$\begin{array}{r} 852 \overline{) 7100} \\ 12 \end{array}$$

$$\begin{array}{r} 71 \overline{) 852} \\ 71 \\ \hline 142 \\ 142 \\ \hline \end{array}$$

$$\begin{array}{r} 564 \overline{) 6760} \\ 564 \\ \hline 1120 \\ 1128 \\ \hline \end{array}$$

$$\begin{array}{r} 852 \overline{) 71.00} \\ 68 \overline{) 140} \\ 2840 \\ 2856 \\ \hline 284 \end{array}$$

$$\begin{array}{r} 114 \overline{) 96.0} \\ 912 \\ \hline 480 \\ 456 \\ \hline \end{array}$$

$$\begin{array}{r} 56.4 \\ 120 \\ \hline 11280 \\ 564 \\ \hline 67680 \end{array}$$

Size range - *Maucalla humerus*

	Length	Br. Pux	Br. dist	Length hum deltoid	Depth hum deltoid	ht aclepi pended
		16.92	6.5?	48.3	9.3x	17.8-15.5
Large	85.2-70.9	20.3-17.3	8.0-6.0	52.0-46.6	12.3-9.9	
Small	66.6-56.4	16.4 ⁺ -14.2 15.8	6.3-5.0 6.2	46.6-41.3 45.3 44.9?	10.2 ⁺ -8.1 9.8	15.8? 15.5 11.4
Great Auk	96 114					

- + 9.9 depth hum deltoid goes with 16.4 Br prox end,
 + 10.2 ^{deltoid depth} goes with 5.7 Br dist end; 9.3 depth deltoid with 7.2 Br, dist. end.

Questionable	as to prox	dist	large or small length delto.	depth delto	ht aclepi
45856	—	6.7	—	11.1	15.5
46029	16.1	—	—	—	13.8
45856	—	6.0	—	9.6	14.7
45847	—	6.2	—	9.3	—
2481	16.4	—	45.3	9.9	—
2505	16.2	—	—	—	15.8
2231	—	5.9	—	9.6	13.8
2080	—	5.7	—	10.2	14.2
2539	—	5.9	—	9.9	—
2644	—	6.4	—	—	14.8
2539	—	6.3	—	—	12.8
2659	—	7.2	—	9.3	—
2432	—	6.4	—	10.3	13.9
2080	—	6.0	—	10.1	13.8
2230	—	—	—	10.9	—
2231	—	6.0	—	9.7	15.5
2314	—	6.8	—	10.1	15.0
2504	15.1	6.0	46.6	—	—

$$\begin{array}{r}
 10492 \overline{) 324100} \\
 \underline{31476} \\
 9240
 \end{array}$$

Humerus ^{maucella 5.27.64}
 Length ^{smaller monographs} 56.4 - 66.6 (23) average 62.3 (10 mm range)
 70.9 - 78.7 (6) " 73.7 8 mm " or 15 to 18

of those with length ^{300 bones} great arch 96-114 ^{max. no length}
 Br. Prox. 13.4 - 15.7 (17) 14.4 - 16.4 (16) includes deltoid length
 17.3 - 18.9 (6) 42.3, 45.3
 17.9 19.3 (14.6)
 20.3 (1) Type 19.3
 Cor. del. max 18.7

Length to deltoid crest
 38.7 - 46.6 (27) 57.0 (35.2)
 48.7 - 53.1 (7)
 Type 53.2

Depth sh. thru deltoid crest
 8.1 - 9.8
 10.3 - 11.1
 12.4
 Type 11.3

Ht. ext. p. proc. min 11.4 - 13.8
 max 15.8 - 17.3
 Type length Length to deltoid
 53.2

Br. dist. (comp.) 5.3 - 6.3
 6.5 - 7.6 large
 6.4 no 2 4.32
 8.0
 Not comp. 5.0 - 6.4
 6.5 7.1
 19.8 big one
 Br. prox 19.3
 20.3
 17.3 - 18.7 (17.3 - 18.2?)
 13.4 - 16.4 (15.7 - 16.4?)

Longest 85.2 57.0
 min-max large 70.9-78.7 48.7-52.8
 " " small 56.4-66.6 38.7-46.6

47 small
 12 large

Monographs:
 Of complete humeri the max
 min ^{length} of small humeri were as
 given above, no change as result of
 new material (but 3 showed greater prox
 + dist 14)
 new material added 7 comp. large size,
 Humeri small

Humeri large 6 practically complete
 6 w/ distal
 3 " prox
 2 shaft
 1 prox + dist. sep. } 22

19 complete + 1 (on mt.)
 17 dist
 1 prox + dist sep.
 18 prox
 2 shaft

Add Univ. 4
 3 prox, 2 sh small? 5
 2 prox 2 dist 1 sh. large? 5

47
 + 12
 59
 { add Univ.
 comp 2,
 prox (vic) 3
 dist (vic) 3 }

prox vic, 1 unit
 dist " 2 "

Miller dist. 1

Miller comp. 4

$$\begin{array}{r}
 5228.8 \\
 \hline
 9) 470594 \\
 \underline{45} \\
 20 \\
 \underline{18} \\
 23 \\
 \underline{18} \\
 79 \\
 \underline{72} \\
 16
 \end{array}$$

$$\begin{array}{r}
 5329 \\
 5329 \\
 \hline
 10658
 \end{array}$$

$$\begin{array}{r}
 5929 \\
 5929 \\
 \hline
 11858
 \end{array}$$

7.24.68

23/194/14
178

Hummer Manacalla ⁴⁶/₁₅₉ San Diego - Luth

n=33	56.4	56	56'	3136
1.7	58.1	58	58'	3364
	58.7	59	59'	3481
2.3	61.0			
	61.2	61	244	14884
	61.3			
	61.3			
	62.0	62	62'	3844
	62.6			
	62.7			
	62.8	(7)	441	27783
	63.1	63		
	63.2			
	63.4			
	63.6			
	63.7	64	192	12288
	63.8			
1.2	65.0	65	130	8450
	65.1			
1.0	66.1	66	66'	4356
	66.5	67	134	8978
	66.6			
4.3	70.9	71	71'	5041
1.3	72.2	72	72'	5184
1.3	73.5	73	73'	5329
1.1	74.6	74	74'	5476
3.4	78.0	78	78'	6084
76.7	78.7	79	79'	6241
	79.0	79	79'	6396
	80.4	80	80'	6400
	80.1			
6.2	85.2	85	85'	7225
				9284
33) 22133701				150434
221				34645
1984				omit in
231				the
				last
				M=67

$$150434$$

$$148539$$

$$32) 1895 (59.2 = 0.2$$

$$160$$

$$295$$

$$288$$

$$170$$

$$7.69 = 0$$

$$11.4 = \checkmark$$

$$67) 769$$

$$67$$

$$99$$

$$67$$

$$320$$

$$15270 = \text{max}$$

$$\text{min.}$$

$$n=29$$

$$11442$$

$$90564$$

$$445M$$

$$34645$$

$$29) 1887$$

$$174$$

$$147$$

$$145$$

$$32$$

$$65.0$$

$$29) 1887$$

$$174$$

$$147$$

$$145$$

$$20$$

$$1887$$

$$1587$$

$$13209$$

$$15096$$

$$1887$$

$$122785$$

$$29) 3560769$$

$$29$$

$$66$$

$$58$$

$$80$$

$$227$$

$$203$$

$$246$$

$$232$$

$$149$$

$$28) 2424 (86.5$$

$$224$$

$$184$$

$$168$$

$$160$$

$$9.3$$

$$33) 4901796$$

$$33$$

$$160$$

$$132$$

$$281$$

$$264$$

$$177$$

$$165$$

$$129$$

$$99$$

$$306$$

$$297$$

$$90$$

$$65) 930$$

$$65$$

$$280$$

$$260$$

$$260$$

$$2214$$

$$85$$

$$32) 2129 (65.9 M umm$$

$$194$$

$$189$$

$$160$$

$$280$$

$$288$$

$$- +$$

$$4 3$$

$$1 8$$

$$9 9 (63)$$

$$9 64$$

$$1 1$$

$$9$$

$$1$$

$$2 5$$

$$4$$

$$2$$

$$2$$

$$28 42$$

$$28$$

$$14$$

$$3969$$

$$7$$

$$27783$$

$$2214$$

$$2214$$

$$8856$$

$$2214$$

$$4428$$

$$4428$$

$$9.2$$

$$6$$

7.24.64

Smallest manilla length to detail
 $n=27$ range $\times$ $\times^2$
 38.7 - 45.3 $\rightarrow 1148 (42.5)$

$$\begin{array}{r} 108 \\ 68 \\ 54 \\ 140 \\ 135 \end{array}$$

$$\begin{array}{r} 48811 \\ 26 \overline{) 91} \quad (3.4 = R^2) \\ 78 \\ \hline 130 \end{array}$$

$$1.84 = R$$

$$4.5 = \checkmark$$

$$\begin{array}{r} 425 \overline{) 1840} \\ 1600 \\ \hline 2400 \end{array}$$

$$12790 = \frac{\text{max}}{\text{min}}$$

$$\begin{array}{r} 1148 \\ 1148 \\ \hline 9184 \\ 4592 \\ 1148 \\ \hline 27 \overline{) 11148} \quad (V) \\ 1319904 \quad (48811) \\ 108 \\ 237 \\ 216 \\ \hline 219 \\ 216 \\ \hline 30 \\ 23 \\ \hline 37 \end{array}$$

Largest manilla same meas.
 $n=9$ 47 - 57 $\rightarrow 51.9$

$$\begin{array}{r} 51.9 \\ 9 \overline{) 467} \\ 45 \\ \hline 17 \\ 9 \\ \hline 80 \end{array}$$

$$\begin{array}{r} 24321 \\ 24232 \\ \hline 8 \overline{) 89} \quad (11.1 = R^2) \end{array}$$

$$3.33 = R$$

$$6.4 = \checkmark$$

$$\begin{array}{r} 519 \overline{) 3330} \\ 3114 \\ \hline 2160 \\ 2076 \end{array}$$

$$12190 = \frac{\text{max}}{\text{min}}$$

$$\begin{array}{r} 467 \\ 467 \\ \hline 3269 \\ 2802 \\ 1868 \\ \hline 9 \overline{) 218089} \quad (24232) \\ 18 \\ \hline 38 \\ 36 \\ \hline 20 \\ 18 \\ \hline 28 \\ 27 \\ \hline 19 \end{array}$$

9.24.64

Small humeri length manilla S.D

n=23

56.4 - 66.4

$\times 62.7$
 $23 \overline{) 1442}$
 $\underline{138}$
 62
 $\underline{46}$
 160
 1

$\times 2$
 90564

$22 \overline{) 157} (7.13 = .2$
 $\underline{154}$
 30
 $\underline{22}$
 80

$4.2 = V$
 $627 \overline{) 2670}$
 $\underline{2508}$
 1620

2.67 = 2

$11790 = \frac{\text{max}}{\text{min}}$

1442
 1442
 $\underline{2884}$
 5768
 5768
 $\underline{11536}$
 $23 \overline{) 2079364}$
 $\underline{207}$
 93
 $\underline{92}$
 164
 $\underline{117}$
 161

$569 \overline{) 666}$
 $\underline{569}$
 1020
 $\underline{569}$
 4560
 $\underline{3448}$

767
 $\underline{767}$

5369
 4802
 5369
 $10 \overline{) 590289} = 59028.9$

n=10

large humeri

70.9 - 85.2

767

M = 76.7

$10.1 = V$

$767 \overline{) 7750}$
 $\underline{767}$
 800

53233
 59770.0

$9 \overline{) 541.1} (60.12 = .2$
 $\underline{54}$
 011
 $\underline{9}$
 20

$4 = 7.75$

n=6 omitting one

$6 \overline{) 455} (75.83$

34645
 34504

$5 \overline{) 141} (28.2 = .2$
 $\underline{10}$
 41

$9.0 = V$

$758 \overline{) 5310}$
 $\underline{5304}$
 64

$12090 = \frac{\text{max}}{\text{min}}$

5.31 = 0

120

$709 \overline{) 852}$
 $\underline{709}$
 1430
 $\underline{1418}$
 120

455
 455
 $\underline{2275}$
 2275
 $\underline{1820}$
 $4 \overline{) 207025} (34504$
 $\underline{18}$
 27
 $\underline{24}$
 30
 $\underline{30}$
 2

$9 \overline{) 5755}$
 $\underline{567}$
 87

$7 \overline{) 6122}$
 $\underline{56}$
 52
 $\underline{49}$
 3

$7 \overline{) 747}$
 $\underline{747}$
 0
 4
 $8 \overline{) 614}$
 $\underline{56}$
 54
 4

536
1412
30) 1978 (65.93 = M)
180
178
150
28.0
270
100
90

$S^2 = \frac{131756 - \frac{(1978)^2}{30}}{30-1} = \frac{3912484}{30} - 130416 = \frac{1340}{29} = 42.72$

$S = \sqrt{42.72} = 6.535$ (Standard dev.)

$V = \frac{6.535 \times 100}{65.9} = \frac{653.5}{65.9} = 9.91$ combined LARGE + SMALL
coef. of var.

Length Humerus Manicella 23 small specimens 56-67mm, 12090

62
23) 1442 (62.7 = M)
138
62
40
100
161

$S^2 = \frac{90564 - \frac{(1442)^2}{23}}{23-1} = \frac{904071}{22} - 1569 = 7.13$
 $N-1 = 23-1 = 22$

$S = \sqrt{7.13} = 2.67$

$V = \frac{2.67 \times 100}{62.7} = \frac{267}{62.7} = 4.2$ SMALL only

536 (76.57 M)
1412
7) 536 (76.57 M)
536
0
7) 14971 (194.57 = M)
1357
140
40
100
161

$S^2 = \frac{41102 - \frac{(14971)^2}{7}}{7-1} = \frac{287296}{6} = 47882.67$
 $N-1 = 7-1 = 6$

$S = \sqrt{47882.67} = 218.82$

$V = \frac{218.82 \times 100}{76.57} = \frac{21882}{76.57} = 285.78$ LARGE only

Great Auk $V = 3$

7.19.64

137
255 / 3490
25.5
940
765
1750
135
7

Mancalla Ulna and Radius

Measurements of length can be made on San Diego ulnae - 13
San Diego radii - 7

A single ulna from Corona del Mar is well preserved, except for broken distal^{end}, but a measurement of length can be estimated.

Of the measureable specimens^{from cautions}, eight range from 25.5 mm. to 27.4 mm., and three from ~~30~~^{29.9} to 33.1 mm. One at 28.7 and one at 27.4 will have to be determined as to which group~~x~~ they fall into. In most measurements the latter appears to be small, the former large. Many ulnae are considerable eroded, possible rough texture indicates immaturity.

One possible qualitative character of the proximal end may be valid, namely the pit-like depression near the tip of the olecranon on internal side appears deeper and larger proportionately in the smaller bones than in the large specimens (QUESTION)

The ulna and radius being such small, flat elements, there is little possibility of discerning differences in contour between large and small or even between large San Diego and the Corona del Mar. Although 13 specimens are sufficiently complete to afford reliable measurement of length, erosion of detail, plus discoloration tend to disguise whatever differences might be present. It is even ~~xx~~ difficult to determine the precise dividing line in measurement of length between the two series. However as the maximum measurement (33.1 mm.) is 37 % greater than the minimum (24.0), the presence of two species is suggested
25.5 above

Seven

~~Six~~ complete radii of which four are at hand, measure 24.2 - ~~31.7~~^{31.7} mm., , the largest 33 % greater than the smallest, possibly the groups fall 24.8-27.0 (3) and 29.5 - 31.7 (4). Corona del Mar 29.7 (1)
The ratio of length of radius to length of ulna is assumed to be approximately 91%. Hence the radii point to a possible maximum ulnar length of 34.9 mm. and the ulnae point to a possible minimum radius of 22.9 mm. (ratio of radius to ulna determined by points of contact on ulna of radius).

In complete ulnae number eleven (11) of which two appear large in girth, and another two are like the in-betweens noted in length above, Two incomplete radii, ^{of which} one very broad (x/ UC46030 possibly 25.8 long) ^{the other,}

Corona del mar radius 29.7 mm.; ulna probably 32.6 mm., depth prox. is 10.9 (CHECK ULNA TO LARGEST SAN DIEGO)

130
24.9 / 31.7
22.9
880
680
1930
1832

Blue

26 small

OK large
 $(28.7) \underline{29.8} - 33.1 +$
 $(\underline{28.7}) \underline{27.8} - 24.0?$

$(34, 5) \rightarrow 8, 8 - 7, 9 - 3$

5.7 - 4.07

1964

June

U L N A

Radio

Ext
Length
at concave
side (of)
bone
(over)

	St. length ext cond to inter cond ridge	int cond to inter cond ridge	Pr. max cond ridge	Pr. dist end	Depth on mid	Pr. Sh mid	Depth max int (both)	Depth max ext	Depth dist	Misc. ulnae bones	Radius Ext length (at concave side of bone)			
										slat depth	inip dist apex ang	Pr dist	Depth max	Pr max
X pub. @ 31.6	20.64	33.1	32.0	6.4	5.3	6.8	3.9	10.0	24.89	5.2	3.2	26.4		
V 55191	26.4	26.2	6.6		6.3	3.9	10.0	21.01	4.7	3.1	23.4			
2248	30.8	30.1	6.3	4.4	6.3	3.6	9.0	22.94	5.8	3.6	?			
X new, unmeas.	23.23	29.8	28.8	6.6	5.1	6.3	3.8	9.1	24.85	5.4	2.7	24.8	3.7	
X 45859	28.7	28.9	6.9	4.2	5.2	3.3	8.9	9.8	24.38	5.1	3.2	23.5		
2287	28.5	27.9	6.2	4.9	5.8	3.4		9.2	23.06	5.1	3.2	23.5		
S X 2439	27.4	26.7	5.4	4.1	5.7	3.3	8.2	8.7	25.79	6.5	3.5			
2257	27.8	27.8	5.6	4.1	5.3	3.0			28.32					
S X 2497	26.0	26.0	5.3	4.3	5.0	2.9	7.6	8.2	25.58	4.6	3.0			
X 6924	26.5	25.7	5.1	4.3	5.2	3.3	7.3	7.7	22.58	4.8	2.6			
S X 45842	26.6	26.2	5.0	4.1	5.0	3.1	7.8	8.7	25.87					
2337	28.6	27.6	5.5	4.2	5.8	3.3			10.67	6.7				
2069	28.7				5.4	3.2			25.80					
2484	25.9	25.7			5.5	3.2	7.9	8.6						
2690	27.7				5.1	3.4								
S X 2497	25.7	25.3	5.7	4.6	5.2	3.2	7.8	8.8	28.12					
X 4924	26.5	25.9	5.1	4.3	5.2	3.4		7.9	22.38					
X 2082	26.3	25.0	5.4	4.3	5.2	3.0	7.7	8.6	26.11	5.0	7.5			
X 2552	25.7	24.5	4.9	3.9	5.5	3.2	7.5	8.2						
X 45853	28.7	28.9	5.7	4.0	5.4	3.3								
X pub. @ 25.4	21.79	25.4	25.0	5.2		4.6	2.9	7.5						
2558	24.8	24.2			4.8	3.1								
2079	24.2	23.9			5.2	3.2			62					
45844	23.6	23.2			4.3	2.8								
2342	24.2	23.1	4.5	3.7	4.8	2.8								

• Data on Anacapa Id. from Mitchell's Book no. 2

F145 - Bird Bone $3\frac{1}{2}$ ft above sea level, $\frac{1}{4}$ mi N.W. of isthmus
July 30, 1960 between mid. & N. isl. on lee side of id. = *Chendytes leucon*

Aug 14, 1960 loc 17 - EM corolla excav "chendytes" loc. ulna, vert + frags.

" 15 " pelvis, femur, curved stern

" 16 " block of articulated bones

Dep: evidently remnants of a very small cove, probably
opening to the NE, as the deposit cannot be contained traces
on so. side of id. Talus evidently covered this high shore
depos. for upper limits (of sandy silt) are irregular, depth
or level of contact varies 2' vertically in less than 10'
long. "

Oct 15, 1960 loc. 227 talus (top) 5'

2 small
1 large when
5.29.64

23.3-26.4

4.6-5.9 (7.4-7.8)

28.8-32.1

5.5-6.9 (9.0-9.8)

29.6-32.2

12.6-14.6

32.8-37.0

4.6-15.8

8 small + 1 mid
5 large

see revised
6.1.64

2 small
4 large

27.0

28.2

24.8

24.3

24.2

25.1

5) 12.55

see
revised
6.1.64

when
left

depth
in

depth
max
int

Carmona

left

ht
MI

Pr
max

Depth
mm
MI

with
radius

Radius

left

left

depth

Ext
length
(corrected
side
mm. left)

S 6426

26.2

5.3

7.5

L 2541

37.0

15.2

4.7

10.1

S S 2632

24.8

9.0

23.6

L 2323

28.8

(6.4)

(9.3)

L

L 2542

35.45

15.4

4.7

9.8

S 2294

none (24+?)

L 2248

—

(6.3)

(9.1)

S 2805

14.7

4.4

10.2

L 2486

29.5

6.4

28.0

L 2589

—

6.6

—

S 2068

29.6

12.6

3.8

8.3

pub. ill. meas

L 2812

31.8

6.6

30.0

S 2832

—

2.8

—

S 2060

—

14.7

4.1

9.3

pub. meas.

L 2567

6.12

6.1

pub. meas.

L 2064

32.1

(6.9)

(9.2)

L

L 2068

—

15.6

4.0

9.6

pub. meas.

S 2238

24.2

6.6

pub. meas.

S 2082

25.5

5.2

7.8

S

L 2060

35.0

15.2

—

—

pub. meas.

L 2067

29.7

6.8

Coronado

28.1

S 2179

25.2

4.6

7.8

S

S 2159

30.2

—

—

7.8

pub. meas.

L 2270

27.0

5.7

pub. ill.

25.8

S 2069

—

5.7

—

S

S 2092

—

—

—

—

pub. meas.

L 2270

27.0

5.7

pub. ill.

25.8

S 2079

24.9

5.8

—

S

S 2825

32.8

14.6

3.7

—

pub. meas.

S 4584

23.2

5.3

pub. meas.

25.0

L 2067

—

6.7

9.7

L

S 2342

—

—

—

—

pub. meas.

S 4584

24.2

5.3

pub. meas.

23.5

U.C. 45853

25.3

5.5

7.6

S

S 2223

—

—

—

9.3

pub. meas.

S 4584

24.2

5.3

pub. meas.

23.5

45854

23.2

4.4

—

S

S 2281

31.7

14.5

4.0

9.3

pub. meas.

S 4584

24.2

5.3

pub. meas.

23.5

45859

28.3

5.1

8.9

S

S 2281

31.7

14.5

4.0

9.3

pub. meas.

S 4584

24.2

5.3

pub. meas.

23.5

45842

26.2

5.0

7.8

S

S 2281

31.7

14.5

4.0

9.3

pub. meas.

S 4584

24.2

5.3

pub. meas.

23.5

(2237

26.4

5.3

—

L

L 2578

41.3

17.8

4.8

10.4

pub. meas.

S 4584

24.2

5.3

pub. meas.

23.5

2294

—

—

—

L

L 2625

—

—

4.5

—

pub. meas.

S 4584

24.2

5.3

pub. meas.

23.5

2101

—

—

—

L

L 2625

—

—

4.5

—

pub. meas.

S 4584

24.2

5.3

pub. meas.

23.5

$$30.4 : 33.1 = 36.7 : X$$

$$30.4$$

$$\begin{array}{r} \text{K} \\ \text{W} \\ \text{W} \\ \text{W} \end{array} \bigg/ \begin{array}{r} - \\ + \\ - \\ + \end{array}$$

$$\begin{array}{r} 31.7 \\ \underline{33.1} \\ 31.7 \\ 9.51 \\ \underline{9.51} \\ 1049.21 \end{array} \quad \begin{array}{l} (34.5) \\ 912 \\ \underline{1372} \\ 121.6 \\ \underline{1545} \end{array}$$

Jenu

There are only ~~five~~^{seven} femora on which measure-
ments of length could be taken. ~~One~~³ of these, ~~to~~^{(Sam no. 2508) 10045851}
not available when the genus was monographed (1949)
There have, however, been a number of incomplete
specimens added. The incomplete bones, like those
that are complete ~~groups themselves into two~~
may be divided into 2 groups, based on size. Six bones
(2 complete, 3 distal ends & 1 prox) are clearly of large size, &
~~fully 13 complete, 3 distal ends, 2 prox, & 1 shaft~~ ^(3 comp. 3 dist, 2 prox)
~~are all small. Two others~~ ^{are, as clearly, small}
The remaining five are very fragmentary, but appear
to fall into the small group.

There are two possible qualitative characters
~~correlated with the two~~ that appear to distinguish the two
groups. However, ~~without~~ additional material is needed
to determine whether they are infallible: ①
prox. surface of proximal end more deeply depressed in small form
and small ridge runs across from obturator
ridge appears to be more at a right L to the latter.

② Distal end, possibly the external condyle
is deeper relative to the inter in the small form

~~Very clearly~~ The type of *Phaenocarpa diegensis*
clearly falls in the large group, ~~is the largest of the specimens.~~ Therefore, the large form
is actually *m. calif.*, *m. diegensis* falls into synonymy
& becomes necessary to rename the small form,
typical of San Diego.

	Length	B ₁ dist	B ₂ max.	B ₃ sh	Depth no. hauler
Jyher	L 55.8	11.0	11.4	4.7	9.2
Miller 2220	L 54.2	11.1	11.7	—	9.0
-2507 dist	L —	10.54	—	4.9	—
-2078	L —	10.7	—	4.8	—
-2137	L —	—	—	4.6	—
-2672	L —	9.8+	—	4.77	—
2507 max	S —	—	8.6	—	—
-2668	L —	—	11.0	—	9.2
2508	Sv 46.7	9.3	—	—	—
2260	Sv —	9.0	—	3.8	—
2097	S 50.4	9.3	9.2	3.9	7.6
2221	S —	9.4	—	4.2	—
224x	Sv —	9.1	—	4.3	—
2186	Sv —	—	8.8	3.9	9.3
2507	—	—	8.7	—	7.0?
2185	S 47.3	8.3	8.7	4.1	6.6
-2690	L —	—	—	4.0	—
2847	Sv 44.7 (43.2)	8.8	—	4.1	7.1
-2681	L —	—	10.4	4.9	7.9
-2694	L —	12.2-3	—	5.6	—
2692	Sv —	—	—	3.749?	—
-2227	L —	—	—	4.0	8.5
2347	Sv —	—	—	4.626 max	—
2145	Sv —	—	—	3.9	—
2162	—	—	—	3.549?	—

15 small 44-47 (50?)
8 large 54-56

9.8-12.2 10.4-11.7 4.0-5.6 7.9-9.2
3.8-4.5 6.6-7.6

Exits U. ridge call

507	50.0	8.7	9.4	4.1	8.2
674	50.8	9.2	9.5	3.9	7.35
494	50.1	8.1	9.3	3.9	7.6
697	47.3	8.4	8.8	4.0	7.5
477	48.55	8.4	9.5	4.1	7.0
485	47.8	8.7	8.8	3.6	7.65
480	47.2	8.3	8.7	4.0	7.2

47.2-50.4 8.3-9.2 8.7-9.5 3.6-4.1 7.0-8.2
3.2 .9 .8 .5 1.2

3/16/19
53.9 at base

naucalla femur

mt, # 2097

large left 54-56

428/536
42.8
1080
804
2246

6.10.68
femur

	an length	int. length	Be dist	Be max	Depth from anterior	Depth distal	br sh mid	Depth sh mid	Depth ext condyle	Depth int condyle	Depth mid max. ant to inter condylar space								
2508	46.6	—	—	9.4	7.3	—	—	—	9.2	—	—								
2848	44.9	43.27	8.53	—	7.1	—	—	—	8.82	—	—								
Tyke Shelton + Miller 2220	56.3	53.9	11.3	11.4	9.2	10.0	4.7	5.3	10.3	7.8	L 53.8								
from pub 2097	54.2	52.8	11.1	11.7	9.0	?	5.0	6.0	10.1	8.1	L 51.5 (from distal)								
ident?	50.4	48.5	9.3	9.2	7.6	?	4.3	5.2	8.8	6.8	S 48.5 (from ant.)								
2694	—	—	12.3	—	—	11.3	5.57	6.47	11.7	9.0	L —								
XV 2662	—	—	—	10.7-11.0	9.2	—	4.8?	5.6?	—	—	L 53.6 (2662)								
2681	—	—	—	10.8	7.8	—	4.8?	5.0?	—	—	L 53.6 (2681)								
UCV 46025	—	—	—	11.0	8.1	—	—	—	—	—	L —								
X 2227	51.6	—	—	8.3	—	9.8	4.6	5.7	10.1	8.1?	L —								
UCV 2507	56.7	54.3	10.3	—	—	10.0	5.0	5.7	10.2	8.5	L —								
X 46022	—	—	10.8	—	—	9.9	—	—	10.3	7.5?	L —								
UCV 4588	—	—	8.0?	—	—	—	—	—	—	—	L —								
X 2078	55.2	—	10.8	—	—	9.5	4.8	5.9	9.8	7.4	L 52.2 (2078)								
X Miller (1950)	—	—	9.3	8.6	—	—	—	—	—	—	L —								
X 2508	46.7	—	—	9.1	7.3	—	2.9	4.5	9.4	—	S 44.4 (2508)								
X 2183	47.3	45.3	8.7	9.2?	6.4?	8.7	4.0	4.4	8.7	6.4	S 44.8 (2183)								
X 2848	44.84	43.3	8.8?	—	7.2	8.3	4.1	4.5	8.3	6.4	S 42.6 (2848)								
UCV 3585	—	—	—	8.3?	—	—	4.0	4.2	—	—	S 44.1 (3585)								
X 2622	—	—	9.6?	—	—	9.4	4.5	5.6	9.5	7.4	L 50.5 (2622)								
X 2221	47.2	—	9.1	—	—	8.4	—	—	9.0	6.6	S —								
X 2244	47.2	—	8.8	—	—	—	4.2	4.7	—	6.5	S —								
X 2260	—	—	9.0	—	—	8.8	3.8	4.7	8.9	6.3	S —								
X 2162	43.3	—	—	8.9	—	—	3.5	4.0	—	—	S 41.8 (2162)								
X 2186	—	—	—	8.7	7.0	—	3.8	4.6	—	—	S —								
X pub 507	—	—	—	8.3	6.3	—	—	—	—	—	S —								
X pub 2507	—	—	—	—	7.5	—	—	—	—	—	S —								

Misc. poor to meas.

4.4 5.2 2.8+

4.9 5.2 —

4.0 5.0 —

3.7 4.4?

5.7 4.3

10.0? 2.6

3.7 4.3

3.9 4.7

4.5 5.1

3.6 4.4

no meas

9.3

(32) femora
17 small + ??
7 large (+ ??)
1 ?

448/563
43.3
13
129
473/563
43.3
13
129
473/563
43.3
13
129

$$\begin{array}{r}
 13 \\
 43 \overline{) 563} \\
 \underline{43} \\
 133 \\
 \underline{127} \\
 60
 \end{array}$$

$$\begin{array}{r}
 88 \overline{) 113} \\
 \underline{88} \\
 250
 \end{array}$$

$$\begin{array}{r}
 414 \overline{) 5130} \\
 \underline{414} \\
 1000
 \end{array}$$

May 1969

Jenuora

independable
calipers
flat and 1/2 in

May 1969

Jenuora

San Diego	ext length	int length	Depth from middle max artic to inter condyle	Br prox	Depth head	Br dist	Depth dist ext	Depth dist int	Depth dist (both cond yles)	Br sh mid	depth sh mid	Br Dist	ext Dist depth	int dist depth	Depth both	Br depth sh	Pray br	depth trach carte	
UCLA 2220	54.2	52.0	51.5	10.0	8.9	10.3	10.2	7.9	9.7	4.75	5.9	15365	10.5	11.2	8.6	10.9	$\frac{4.9}{2.8}$		
UC Tuke 33409	55.7	53.8	53.1	10.1	9.0	10.9	10.2	7.8	9.8	4.9	5.1	RPM 15425				$\frac{4.6}{5.6}$	9.8?	inc 8.9?	
Racm 2507	55.5	53.5	53.0			10.3+	7	7	10.0	4.6	5.6								
D.L.H. 2078						10.3	9.8	7.4	9.5	4.9	5.8								
prox R.H. 2668				10.7	9.15					4.9	5.7								
2227					inc 8.3					4.1	4.85	UCLA 54.3	52.0		48.1	5.05	43.9	49.8	
2672						9.7	7.7		4.5	5.5	type 56.3	53.8			46.9	"	53	48.9	
2137									4.4	5.4	2345 UCLA 57.1	49.0						42.3	
2690									4.5	5.2	LACU 2097 50.4	48.5						473	LACU 2105
UC Buck 4589									5.0	5.7	4) 2121							467	mill 2508
prox L 4603				10.8	7.9							53.0						44.8	LACU 2048
Dist R.H. 4602						10.6+	10.3	7.4	10.3									6) 2848	
LACU 2681				10.1	7.8?					4.9	5.0							47.4	
San Diego State 2538	48.9	46.9	46.5	9.0	7.4	9.3	8.6	6.55	8.2	3.9	4.5	Cedar 15365	10.6						
39 L	49.8	48.1	47.4	9.4?	7.7	9.2+	8.5?	7.1	8.9?	4.1	4.7								
024 R	47.8	45.2			7.6			6.4		4.1	4.8								
UCLA 2345	51.1	49.0	48.6	9.2		9.3	8.7	6.7	8.55	4.2	4.4								
LACU 2185	47.3	45.2	44.7	9.0	6.3	8.5	8.6	6.5	8.4	4.0	4.4								
Cedar 15373 R	54.8	52.6	52.1	10.5	9.2	10.5	10.7	7.0		5.0	6.2								
15373 L				10.3	9.5					5.0	6.2								
1284 L	55.0	53.7	52.0	10.5	9.5	10.8	10.0	7.4	10.0	4.4	5.7								
1284 R	55.4	54.3	52.9		8.7	10.9	11.1	7.4	9.9	4.4	5.8								

Tibiotarsi

Measurement of length ^{is available} ~~can be made~~ for
~~fifteen~~ ^{fourteen} of the San Diego Tibiotarsi and can be
~~estimated on another five~~. The specimen from
Cerro del Mar is incomplete but the length can be
estimated. ~~Seven specimens, including the~~
~~bone from Cerro del Mar are longer than in~~
comparison to ~~the~~ ^{of the} specimens from S. D. are
short & slender, ~~four~~ ^{four} are long & stout. ~~One~~ ^{one}
of medium length (but, the long & the short) is quite
stout. ~~None of the largest specimens have the supratendinous~~
~~badge in fact~~. Of ~~27~~ ³³ bones in which the distal end is
preserved, only eight have the supratendinous badge
of the distal end intact. With ~~a possible exception~~,
Six of these are ^{obovoid} ~~all~~ small specimens. The excepted bones
are of ~~a~~ length intermediate, but, the ~~obovoid~~ ^{obovoid} large bones
& the ~~obovoid~~ small bones. One is inclined to believe
that these 2 bones belong with the small group
because of the badge. ~~If~~ One Tibia however
is with a femur which appears to fall out to
the Ray group (no. 2681)

chunk bridge
 → c 860.5 98.7 6.1 9.3
 2808 no bridge 92.8 6.1 9.3
 2125 no bridge 92.7 6.7 9.7
 2477 no bridge 92.0 6.3 9.6
 2322 no bridge 94.2 6.3 9.6
 melle 2244 no bridge 91.4 — 8.7

Tabonekabeirus

Coronado del
 mar 89.7? 7.1 —

6.6 mm break

bridge 2681 bridge ✓ 85.5? 8.9 5.7 8.7 L
 bridge 2550 bridge ✓ 82.5 7.5 8.8 L
 bridge 2177 bridge ✓ 80.8 6.9 8.9 L?
 2134 no bridge 78.5 1.3 —
 2286 no bridge 77.4? 1.1 7.5
 2549 no bridge 77.3 7.9
 2085 77.2? 7.8
 2478 no bridge 76.8 2.3 7.8
 bridge 2083 bridge ✓ 74.5 S 7.5
 2088 no bridge 72.8 6.9?
 2628 no bridge 72.7 7.8
 bridge 2209 bridge ✓ 71.9? S 7.5
 2320 — 8.3

distals only

2210 8.3 no bridge
 2259 7.6 bridge ✓ S
 2100 7.6 bridge ✓ S
 2108 7.8 no bridge
 2089 7.4 no bridge
 2071 7.5 no bridge
 2671 small no bridge
 2551 " bridge ✓ S
 2479 " bridge ✓ S
 6 more " no bridge
 2223 large " "

808) 890
 808
 820

774) 7500
 6966

92) 96
 92
 40
 927) 940
 927
 430

= large form

ibrotarsus

Macrallia

great
Length
from
condyles
to prox
articular
surface

Breadth
distal
and
anteriorly

Br
to
length

Small
Distals

UCLP 4015	98.7				45890	no bridge	5	19.7.7 dist
LAM 2125	92.7	No bridge - young	9.8	10.5	2671	no bridge	5	In addition to those measured there are 6 specimens which
" 2308	92.7	no bridge - adult	9.2	9.9	2551	Bridge	5	cannot be measured but which fall into the small size group
" 2322	94.7	no bridge	10.0		2479	Bridge	5	(2 of these are distal ends & have no bridge). In 2 others (without
Miller 2294	91.4	no bridge	8.7		2348	no bridge	1	bridge) size is not clear due to preservation.
LAM 2177	80.8	Bridge present	8.9	in vert.	2510	no bridge	5	To these should be added Padre's incomplete specimens
" 2134	78.4	no bridge			2635	no bridge	5	which are not enumerated in this list
" 2286	77.3	no bridge	7.3	ap	2479	no bridge	5	
" 2083	74.5	Bridge present	7.5	ap	2085	no bridge	1	Totals (including only the 2 of Padre's listed here)
" 2088	73.4	no bridge	6.9	ap	2575	no bridge	1	Large 5 (no bridges) length 92.7 - 91.4 (10% range)
" 2283	73.2	no bridge		9.4	2348	no bridge	5	Small 18 (bridge preservation 5 distal ends, out of 14) length 80.8 - 71.6 (14% range)
" 2209	71.6	Bridge present	7.4	ap	2223	no bridge	1	
Miller 2270	Large	no bridge	9.4	dist	2479	no bridge	1	a little less than 1:3 ratio of abundance
LAM 2210		no bridge	8.3	in vert.	2635	no bridge	5	
" 2259	S	Bridge present	7.6		2686	no bridge	1	
" 2100		Bridge present	7.6		2683	no bridge	1	
" 2108		no bridge	7.8		2681	Bridge	1	
" 2089		no bridge	7.4		2691	no bridge	5	
" 2071		no bridge	7.5		2834	no bridge	1	
1957					2322	no bridge	1	
" 2628	72.8	"	7.6	10.4	2835	no bridge	1	
" 2458	76.5	"	7.3	9.0	6183	no bridge	1	
" 2286	77.3	"	7.3	9.4	2895	no bridge	1	
" 2549	76.8	"	7.7	10.0	2320	no bridge	1	
" 2477	92.2	"	9.7	10.4				
" 2550	82.0	Bridge present	8.7	10.6				

① Date

Tibiotarsus

Measurements of length can be made on ~~fifteen~~ ^{fourteen} of the San Diego specimens. The Tibiotarsus from Corona del Mar is incomplete, but the length can be estimated. Other specimens of this element include 19 distal ends (mis. 17 Miller monopahed 2) and ~~incomplete~~ fragments of proximal end + shaft. Two sizes of Tibiotarsi are present, ~~five~~ ^{large} at least seven large (over 89 mm. in length) and 25 small (under 80 mm.). Although ^{actual} length cannot be measured on all specimens, the range ^{in size} can be estimated ~~with~~ ^{the} the supratendinal bridge is ^{still} present in six of the small specimens, but in none of the large. Two Tibiotarsi with lengths ~~between 84 + 79 mm. respectively~~ ^{of 82.5 + 80.8 mm.} have the bridge intact and are, therefore, believed to belong with the ~~group~~ ^{group} of smaller species. Except ~~that~~ ^{for} the presence of the bridge in some small individuals, there appear to be no other qualitative clues, separating the two forms on the basis of this element.

$$\begin{array}{r} 10 \\ 987 \overline{) 1060} \\ \underline{987} \\ 730 \end{array}$$

6-9-64

Tibiotarsus traucalla

Corona del mar tibia is large (same as length of S.D.) but appears to differ from S.D. Bones as follows:

- ① shaft ^{prox.} less excavated (longit.) along fib. cut ② ^{distally} shaft has more of a curve ~~from its highest apex to the joint, border~~ and the internal diameter as attachment is broader and more diagonally placed ~~the int. edge of sh. below process forms more of a~~ [↑] ~~forward~~
- ④ sh. post. under head quite indented

If there is any dif. bet. large & small S.D., it might be that the ant. surface of shaft (prox) is more raised in large, flat in small. The Corona del mar tends to be flat (the size is greater than the small S.D.,

Length ^{S.D.} large 98.7 - 91.4

small 71.5 - 81 or 82?

138
715) 987
715
2720
2145
5750
5720

Total ³¹ ~~55~~ tibiae

13 large 29 small, 12 questiones
20 27 5

	length	dist br.	prox br.
mt. 2097 femur	50.4		9.2
mt 2177 tibia	80.8	8.9	
mt 2177 tarsus	38.3		

2681 tibia ^{est} 88.7 8.4

2681 femur 10.4

Tibiotarsus			
dist small	no bridge	15 - 1 miller pub	27
"	bridge	3	
comp 2	bridge	3 (1 includes in int.)	
"	no bridge	5	4
the med	bridge	28	
med dist	no bridge	28	
large dist	no bridge	8 + 1 miller pub.	20
" comp	"	4	
large prot	"	1	
small "	"	6	51

1 of these has a note in which bridge is gone + 2 scraps (1 large, 1 small)

806) 890
 806
 822
 822) 800
 822
 380

✓ = bridge intact
 14683
 1030
 7831 3190 195326
 245

13 Large, 29 small, 11 questionable

Thiodarus *Maucala* dist 2210 unit

~~14683~~
 6, 8.6 x 6.9, 4.4

	Br	depth	depth	Br.	Depth	Br.	Length	Length	Ratio	Miscellaneous <i>Filicaria</i>					
	to	dist	int	depth	shaft	mid.	to	to	to	one or no meas.					
	surf.		cond	ext	mid.	mid.	top	end	ba	Br dist	ext	ext	Br	depth	ext
UC 46015	98.7	11.1	10.6	11.0	6.9	4.0	84.8	62.0	L	8.4	8.1	8.1	5.6	4.2?	7.5
2125	93.0	9.6	9.8	9.9	6.9	4.9	81.0	62.2	L	9.4	9.2	9.2			2223 no meas
2308	93.0	9.1	9.8	9.6	6.3	4.5	79.6	60.5	L	9.0	-	-			dist. approx
2477	92.2	9.6	8.8	9.3	5.9	4.2	79.3	58.6	L	8.3	8.7	9.0			3 prox 2233, 2434, 2510
2299	91.4	8.7	8.9	8.8	6.0	3.7	?	?	L	8.3	8.6	8.7			2 shaft 2479 no meas.
2630	91.4	9.8	8.9	9.0	6.8	4.5	79.9	61.0	L	8.5	8.1	8.1			35 dist inc for meas
2322	10.0	9.5	9.5	9.5	7.0	4.1	79.3	60.0	L	9.4	9.1	9.2	5.7	3.6	2510, 2635, 2348
2479	9.1	9.6	9.6	9.6	6.2	4.4	60.0	60.0	L	10.4	9.9	10.2			dist to lower end 66.0
2550	82.2	8.6	-	-	6.4	4.1	72.0	52.4	L	10.0	9.3	9.7			
2681	81.7	8.2	8.4	8.4	5.6	4.3	72.1	56.7	L	7.6	7.5	7.5			
2177	80.8	8.9	9.0	7.9	5.6	4.2	70.4	55.0	L	7.5	7.6	-			br with ext depth
2428	76.3	7.3	7.6	7.2	4.7	3.5	66.0	51.1	S	7.3	7.4	-			
2284	77.2	7.1	-	-	-	3.1	66.9	52.0	S	7.6	7.4	7.1			
2549	76.7	7.6	8.0	7.7	4.8	3.8	65.2	50.7	S	6.8	7.1	7.3			
2628	72.8	7.4	7.1	7.4	5.0	3.1	62.6	47.3	S	7.9	7.2	7.1			
2083	74.4	7.3	-	-	5.0	3.6	64.1	48.1	S	7.8	7.9	7.5			
2108	73.4	6.9	7.5	7.2	5.3	3.5	51.4	48.1	S	6.8	6.9	7.0			
2209	71.5	7.1	7.2	7.4	4.5	3.5	60.7	48.1	S	-	7.4	-			
2671	69	-	-	-	-	-	50.9	48.1	S	7.3	6.9	6.7			
2134	77.5	7.2	-	-	4.9	3.4	-	-	?	-	-	-			
2317	77.5	7.2	-	-	4.9	3.3	-	-	?	-	-	-			
2520	74.7	-	-	-	4.5	3.3	-	-	?	-	-	-			

Corona del Mar
 2424 7.0 4.3

eroded
 7.5-8.5
 7.5-8.5
 7.5-8.5

428) 580
 428
 1020
 856
 1640

4
 femur

7, 3, 64

Only seven femora can be measured for length (4 of which have not before been recorded). These divide readily into two size groups; the larger, composed of three specimens ranges from 48.5 - 53.0 mm; from intercondylar area distally to center of proximal articulation; the smaller, composed of 4 specimens ranges from 42.8 - 44.8, br. dist end 8.7 - 8.8 (2 only); prox. 9.1 - 9.2 (2 only). Another 12 bones have either prox or dist end complete, or the major part of shaft. These also divide into two size groups: large, 6 bones, with 2 prox 11.0 mm; 4 dist 9.6 - 10.8; 4 shafts, 8.0 - 8.9; 8.0 - 8.7 dist (3); small 6 bones, dist 8.8 - 9.1 (3); br prox 8.2 - 9.2 (4); 3 shafts, 8.0 - 8.7 dist (3).

(17 small 8 large 3 large) The breakage of ^{detailed} contours & the mottling coloration of the bones, make it almost impossible to speak with confidence concerning differences that may exist bet. the large & small series. There is, however, a suggestion of greater depression posteriorly along the edge of the trochanter in the small group than in the large and also the prox. contour appears to be straighter from trochanter to head, in the large group. The head seems more prox'ly directed ^{neck is more marked}. In the type of *P. diegensis* the trochanter crest is ^{very} shorter than in any of the other specimens (check 2097 + Miller 2220 - illus shows long. troch).

The type of *P. diegensis* is not only the largest of the complete femora, but in other measurements, as well is within a few 10ths of mm. of being largest except for one distal end. This one specimen exceeds the type by 1 full mm. in br. of dist end of which may be a part of the shaft. It is also ^{the distal} shorter (reminds one of outstretched large humerus as well) (not marked) (if 2 are present) becomes *diegensis*.

Leura in order
 of length meas.
 from ~~anterior~~ ^{back of head}
 of furrow to interocular
 groove

June 1, 1969
 from
 attached
 tubules

- ① #2668 53.6 mm est.
- ③ #2507 53.0 mm est.
- ② #411 53.1 " actual
- ⑤ #2220 ^{UCLA} 51.5 " "
- ④ #2078 52 - " "
- ⑥ 2345 ^{UCLA} 48.6 " "
- ⑦ 2097 (mt) 48.5 from illu
- ⑧ #39 SDSC 47.4 mm actual
- ⑨ SDSC 253 46.5 " "
- ⑩ SDSC 024 45.2 " "
- ⑪ 2185 44.8 " "
- ⑫ 2508 44.4 " "
- ⑬ UC 45851 44.1 " "
- ⑭ 2848 42.6 " "
- ⑮ 2142 41.8 " est

TABLE III

Estimated Size Range of Limb Elements
of M. diegense and M. milleri

Element	<u>Mancalla diegense</u>				<u>Mancalla milleri</u>			
	No. of bones	Length in mm			No. of bones	Length in mm		
		max.	mean	min.		max.	mean	min.
Coracoid	9	54.0	49.1	47.5	12	43.5	40.0	39.0
Humerus	7	85.2	76.5	71.0	25	66.6	62.7	56.4
Ulna	7	32.1	29.4	28.0	16	27.0	25.3	23.6
Radius	3	31.8	30.9	29.6	6	26.9	25.1	24.2
Carpometacarpus	7	37.2	35.6	35.0	7	33.2	31.6	29.6
Femur	5	57.0	55.2	53.8	9	51.1	47.9	44.9
Tibiotarsus	7	98.5	90.2	81.0	8	77.5	74.9	72.0
Tarsometatarsus	4	43.6	39.9	38.0	5	36.0	34.0	31.1

Length 1, 91.5 mm (6/dec 18.6)

~~premiums~~ #2294 Jan 11.4
#2295 Feb 8.7
#2296 Mar 9.4

to condylo
Carpometa. 31.7 - 31.8
10.1 - 9.0
13.7 - 14.5

Length 11
Depth 11

length Prior the

2 specimens
only

fewer (2 specimens)
ext length 51.1, 54.3, 57.7
wt " 49.0 52.0

from a number

11 Carpus 5

11 ~~at~~ Idea to humans

17 fewer to flintstones

11 + ~~Vallis~~
+ Vallis fern (1284) 72.5
11 + Vallis fern

M. degen
arrange
S. D. min

59, f. 63.4

69.0 72

1. 4. 19

111 24

58.5

map

рхис)

14

July 4, 1969

San Diego Longhorn

2177 80.8 6528.64
 2550 82.4 v 6789.74
 2294 91.6 v 8390.56
 2477 92.2 v 8500.84
 2308 93.0 v 8649.00
 2825 93.0 v 8649.00
 2322 94.0 v 8836.00
 46015 98.7 v 9741.69

8) 725.7 66085.49
 90.6 - 65830.06
 7) 255.43 36.49 02

226.04 8.00
 6.6 = $\checkmark$
 906) 6040.
 5436
 6040

834 916 725.7 6.02
 824 916 725.7 6.02
 3296 5496 5079.9 1204
 1648 916 3628.5 3612
 6592 8244 5445.4 3628.04
 678976 8390 5079.9 3628.04
 94 8) 526640.49 6.04
 94 65830.06 6.04
 376 2416
 846 3624
 8836 3648.0

m. milleri

Thaumatococcus humilis

not

br	fl	gr	de	bd
13.7	15.8	58.2	14.6	
14.3	15.4	58.4	11.2	
13.5	14.4	61.8	12.6	

a 2096
2.3²⁷⁰⁰ 2²⁰⁵⁰⁰ 9.2
2.5²⁴⁰⁰ 1.4²³⁰⁰ 9.0
2.6²⁵⁰⁰ 1.7¹⁹⁰⁰ 8.9

- 2094
2219
2813

S.D

4.5²⁷⁰⁰ 3.5²¹⁵⁰⁰ 11.1
3.8²⁸⁰⁰ 3.4²⁷²⁰⁰ 12.5
3.5²⁶⁰⁰ 2.6²²⁹⁰⁰ 10.7

2331
7731

S.D

17.6	20.0	63.2	19.8
16.9	18.8	74.0	20.1
17.2	19.2	55.7	13.9

1067/2574) C.M

2.8²⁸⁰⁰ 2.8²⁴⁸⁰⁰ 11.0
2.7²⁸⁰⁰ 2.5²⁴²⁰⁰ 10.3
3.1²⁶⁰⁰ 2.5²⁴⁸⁰⁰ 11.5

15373
15367
15382

C.M

15.8	17.8	61.8	15.8
15.5	16.8	56.4	16.1
18.0	20.4	56.4	13.8

Humerus	Length 71-85 Br. max 17.9-20.3	Sturdy 56-66.4 14.2-16.4
Coracoid	Length 45-49.7 scap. post. 15.8-16.6	37.3-41.5 13.7-14.6 22.3-26.7
Ulna	27.9-32.4 length 5.9-6.4	4.5-5.7
Carpus	3.8.3-37.2 Length M1 15.0-15.4 depth prox 9.8-11.2	29.6-33.2 12.5-14.2 9.0-10.1
Tarsus	Int length 52 or over (intercond. 51.5) Br. dist 10.3 or over	Int length 49 or under (48.6) Br. dist 9.7. "
Fibula	91-98.7 distal 87.1-10.6	72-82 6.9-8.9
Tarsus	38-43 Gr. prox 7.2-8.4 9.8-10.7	31.1-37 7.4-10.1 7.2-8.4

San Diego

	Maucaalla				Miller		S.D. Totals	Corona Totals	Grand TOTAL
	Museum San Diego Monographed new		Coronado del Ma Monographed new		San Diego monographed new				
Sternum	8	5			1				
? Humerus	1	0			0				
Coracoid	7	25		1	2				
Scapula	5	10			2				
Humerus	27	69		2	12				
Ulna	5	22		1	0				
Radius	0	6		1	1				
Carpometacarpus	6	12	1	3	1				
? Wing phalanges	1				0				
Pelvis parts	2	1			3				
Femur	9	10			5 + Type				
Tibiotarsus	12	29 (with 2 day one added)		1	6				
Tarsometatarsus	5	14	2	1	2				
Skull parts	3	10			0				
Vertebrae	12		1		0				
	103	213	4	10	35	34			
	316				+ type 69				

Revised
1964

$$\begin{array}{r} 134 \\ 87 \overline{) 117} \\ \underline{87} \\ 300 \\ \underline{261} \\ 390 \end{array}$$

$$\begin{array}{r} 141 \\ 125 \overline{) 1770} \\ \underline{125} \\ 520 \\ \underline{500} \\ 20 \end{array}$$

$$\begin{array}{r} 138 \\ 298 \overline{) 413} \\ \underline{298} \\ 1150 \\ \underline{894} \\ 2560 \end{array}$$

$$\begin{array}{r} 146 \\ 582 \overline{) 853} \\ \underline{582} \\ 2710 \\ \underline{2328} \\ 3820 \\ \underline{3492} \end{array}$$

$$\begin{array}{r} 120 \\ 710 \overline{) 853} \\ \underline{710} \\ 1430 \\ \underline{1420} \\ 10 \end{array}$$

$$\begin{array}{r} 113 \\ 582 \overline{) 664} \\ \underline{582} \\ 820 \\ \underline{582} \\ 2380 \end{array}$$

$$\begin{array}{r} 125 \\ 348 \overline{) 437} \\ \underline{348} \\ 890 \\ \underline{696} \\ 1940 \end{array}$$

$$\begin{array}{r} 114 \\ 383 \overline{) 437} \\ \underline{383} \\ 540 \\ \underline{383} \\ 1570 \\ \underline{1532} \\ 38 \end{array}$$

$$\begin{array}{r} 125 \\ 34 \overline{) 437} \\ \underline{34} \\ 97 \\ \underline{68} \\ 190 \end{array}$$

$$\begin{array}{r} 109 \\ 34 \overline{) 371} \\ \underline{34} \\ 310 \end{array}$$

$$\begin{array}{r} 161 \\ 714 \overline{) 927} \\ \underline{716} \\ 2110 \\ \underline{1432} \\ 6780 \\ \underline{6444} \\ 3360 \\ 109 \end{array}$$

$$\begin{array}{r} 161 \\ 914 \overline{) 927} \\ \underline{914} \\ 1300, 114 \end{array}$$

$$\begin{array}{r} 114 \\ 808 \overline{) 927} \\ \underline{808} \\ 1190 \\ \underline{808} \\ 3820 \end{array}$$

$$\begin{array}{r} 114 \\ 716 \overline{) 784} \\ \underline{716} \\ 6800 \\ \underline{6444} \\ 3560 \end{array}$$

$$\begin{array}{r} 161 \\ 716 \overline{) 820} \\ \underline{716} \\ 1050 \\ \underline{716} \\ 3340 \end{array}$$

$$\begin{array}{r} 124 \\ 298 \overline{) 372} \\ \underline{298} \\ 740 \\ \underline{596} \\ 1440 \end{array}$$

$$\begin{array}{r} 117 \\ 352 \overline{) 413} \\ \underline{352} \\ 610 \\ \underline{352} \\ 2580 \\ 2464 \end{array}$$

$$\begin{array}{r} 106 \\ 298 \overline{) 317} \\ \underline{298} \\ 1900 \end{array}$$

Tramella humeri San Diego - Length small

56	57	58	59	60	61	62	63	64	65	66	67
56.5 (2L)		58.7			61.2	62.7	63.7	65.2	66.0	66.5	
58.4		58.1			61.0	62.0	63.1		65.1	66.1	
					61.3	62.8	63.4		65.0	66.1	
					61.3	62.6	63.6			66.5	
					61.8		63.2				
							63.8				
							63.2				

Br prox

14.0-1	2.3	4-5	6-7	8-9	15-1	2-3	4-5	6-7	8-9	16-1	2-3	4-5
14.2	14.2	14.5	14.6	14.8	15.1	15.2	15.5	15.7	15.8	16.1	16.2	16.4
14.2	14.4	14.4	14.8	15.0	15.1	15.2	15.4	15.6	15.8		16.3	
				15.0	15.0	15.3	15.5	15.6			16.3	
				15.0			15.4	15.6			16.2	
							15.5	15.7				

68	69	70	71	72	73	74	75	76	77	78	79	80
		70.9		72.2	73.5	74.6		76.7		78.7		81.7

27 small } for length
6 large }
39 small } for length
16 large }

over 80
85.2

15 of Br Camp

70.9	
72.2	
73.5	
74.6	
76.0	
78.7	
81.7	
85.2	614.58
75.3	10.45.8
79	
41	
60	

17-1	2-3	4-5	6-7	18-9	18-1	18-2-3	4-5	6-7	8-9	19-1	2-3	4-5	6-7
17.9	17.9	18.0	18.2	18.2	18.2	18.2	18.5	18.7	18.9	19.0	19.3		20.2
				18.2	18.3	18.3	18.5	18.6					20.2
				18.2									

over 20
20.3
20.0

25.2
25.2
25.2

27.2
27.2
27.2

58 for
1000
max

Coarct. Depth

37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56
37.3	38.5	39.6	40.0	41.2				45			48.6	49.6	50	51.7					56
		39.9	40.7	41.4							48.7	49.7	50.2						?
			40.5	41.5															!
			40.8																
			40.1																

Length Scap. ant. & head

13.5-9	14-4	14.5-9	15-4	15.5-9	16-4	16.5-9	17-4	17.5-9	18-4	18.5-9	19-4
13.7	14.3	14.4	15.2	15.8	16.2	16.8	17.4	17.9	18.3		19.8
13.9	14.0	14.6		15.9			17.5				
13.9	14.0	14.8									
13.8	14.3										
13.7	14.2										

Wing

24-4	24.5-9	25-4	25.5-9	26-4	26.5-9	27-4	27.5-9	28-4	28.5-9	29-4	29.5-9	30
24.2	24.7	25.3	25.9	26.1	26.6	27.0	27.8	28.9		29.9	30.8	31
	24.8	25.3	25.7		26.5	27.3		28.4				
			25.9					28.5				
								28.7				

Radius

342	25.2	27.0	29.5	30.4	31.7
24.8			29.7		

Carpomet

296	30.7	31.1	32.7	33.0	35.3	36.0	37.0
		31.7		33.2	35.4		

Depth prox

12.5	13.3	14.2	15.1	8.8	9.1	10.1	11
	13.7	14.4	15.2		9.1	10.4	
		14.5	15.2		9.5	10.5	
		14.7	15.4		9.1	10.4	
		14.9	15.1		9.7	10.9	
			15.4			10.9	

Test. nif

		Marechal
	31-6	
	29-3	
	27-4	
	28-9	
	aver	25.8

Marscalla

[illegible]

Mausalla

	Br across acetab.	Br across gum Sacrum ventrally	Length gum sac.						gn length	h fur	Br dist	Br h. mid	depth on mid	depth from distal to trunk ridge	Depth head	Depth int cond	Depth ext cond.
Pelvis																	
2281	33.5	11.1	—			Same	2220	54.2	11.7	11.1	5.0	6.0	9.0	5.5	10.1	8.1	
2270	—	12.5	—			Type		56.3	11.4	11.0	4.7	5.3	9.2	5.5	10.3	8.8	
2165	—	12.3	87%			2097		50.4	9.2	9.3	4.3	5.2	7.6	5.0	8.8	6.8	
						2018		—	—	11.1	5.1	5.9	—	—	9.7	7.7	
	Br dist	Br 2 lines	Br dist	Br				Br on mid	depth on mid	Br dist	depth int cond	depth ext cond.					
2091	9.6	5.9	4.7			① Tibia	12125	92.7	7.4	5.0	9.7	10.1	10.0				
2220	8.3	6.1	—			③	2294	91.4	6.0	3.7	8.7	8.9	8.8				
condellum 2034	—	—	4.7			②	2083	74.1	5.2	3.7	7.5	7.4	7.3				
						①	2088	72.8	5.6	3.7	—	—	—				
							2270	—	—	9.4	9.2	9.1					
							2100	—	—	7.7	7.7	7.6					

	length Carpometacarpus (great)	length on inner side from trachea to start of distal synphysis	length humerus	length femur	length ulna to ext. cotylole lip	length ulna (greatest)	length MI ✓	depth per end Carpometacarpus to 1st phalanx M.I.	greatest depth trachea (ext.) ✓	1st phalanx above M.I. (ext.) ✓	2nd phalanx + 1/2
--	--------------------------------------	--	----------------	--------------	-------------------------------------	---------------------------	-------------	---	------------------------------------	------------------------------------	----------------------

Lam spec.								12.6			
Great auk	45.8	38.8	104.1	76.7	55.3	59.0	12.0	10.9	7.7	5.6	6.3
Jessie's Newport		34.8?	65.2	55.7			17.3	10.2	7.5	4.2	5.2
Sea m. gull			65.2	55.7							
Great Auklet	44.3	39.2	103.1	75.4	55.3	60.5	12.0	11.0	8.2	5.7	6.0
Palmyra											
Penguin 196	31.3	26.4	55.1	59.3	39.1	—	12.8	10.8	8.3	3.2	4.3
Humboldt 1041	40.5	37.1	75.1	83.0	50.7	—	18.9	14.0	11.5	2.8	5.8
King Penguin 227	68.4	56.7	112.7	97.2	85.4	—	25.8	19.5	14.8	5.5	8.0

	length	tibia	tarsus	humerus	ulna	ext. length Carpus	Carpus height to distal synphysis
Great auk	76.5	132.0	54.0	103.5	58.4	45.6	40.8

Carpometacarpus comparison with

fossil from Tarsi in vert. ser. 67

length	Br prox	Br dist	Br sh	depth sh	dist between fractures	depth mid to int troch	int above mid cond.
Great Auklet tarsus from Long Mille 1285							
50.2	12.6	10.2	6.8	5.0	28.0	10.3	4.4
Mille ant Lam fossil 1			4.8	3.7	25.8		
2			4.7	3.4	25.4		
Mille shap			5.5	3.7			
Mille dist		6.3				8.0	3.3
Lam auk	54.0	14.3	11.7	7.4	5.7	31.0	

Manuella
Jenny

1950

OLD
see 1964
packet

qr
length

int
length

br.
dist
conds.

br
prox

G
sh

2097 50.2 47.8 9.3 9.4 4.8 pub. ill
2185 47.3 45.1 8.4 9.2 4.2 mace
2221 — 9.4 —
— 10.5 — 5.0
2137 — — — 4.7
2186 — — 8.8 —
2244 — 8.6 — 4.5?
2227 — — — 4.8
2290 — 9.0 —

Type 33409 56.0 53.8 11.0 11.2 5.0
Miller 2220 54.2 — 11.1 11.7 5.0

pub. ill
mace

48.7
2) 97.5

L

R

sh comp dist prox comp dist prox sh
1 11 11 11
1 11 11 11

1.1 large
1.1 small

Length 56.0 - 47.3 = 5.7 mm variation

56.0 - 54.2 = 1.8 mm var (2)

50.2 - 47.3 = 2.9 mm var (2)

Brdist 11.1 - 10.5 (3) .6 mm range

9.4 - 8.4 (5) 1 mm range

56.0
47.3
9.7

Naucalla *Taurus*

91.4
80.8
6

92.6
71.7
209

80.8 1950
74.5
6.3

80
length
max
dist
sh
Part
ext.
length
bet
max
plus
foramen

Miller 2220					
ad 2178	43.7	10.8	10.0	6.0	27.4
ad 2177	38.3	9.8	8.5	4.8	23.6
2034				5.0	25.5
2232	9.4				
2224			9.1	5.3	
2275			8.4		
2308	92.2	9.1	9.1	6.2	60.3
2322		10.3	4	6.9	60.6
2125	92.6	9.6	9.4		62.1
ad 2177S	80.4	8.9	8.3	5.6	54.0
ad 2083S	74.6	7.6	7.2	5.2	49.3
2084S	73.4 ⁺	7.2 ⁺	7.3 ⁺	5.5	51.9
2108S		7.7		5.5	51.8
2100		7.5			
2320		8.4			
2210S		8.3			
2209S	71.7	7.4	7.1	5.4	49.3
2071		7.5			
2298	91.4	8.7		6.0	60.2
2270		9.4			

Length 38.3 - 43.7 adults (2) aver 41.0
Pr. dist 10.0 - 8.4 aver 8.8 (5)

Tibio Taurus

bridge inc.
"
"
"
bridge complete
bridge complete
bridge inc.
"
bridge comp.
"
bridge comp.
"
"

91.4 - 71.7 = 19.7 range
Length 91.4 - 92.6 aver 92.0 (3) bridge inc on 3
71.7 - 80.4 " 55.0 (4/5) aver 82.3
Pr. dist 10.3 - 9.1
" 8.9 - 7.2
short length 62.1 - 60.3 (3)
" 54.0 - 49.1 (5)

95

82.3
57.63
56
1.6
23

1957

Mauvalla Tasumelataisi

	Length across max cor. to mid trunk	gn length	Bc shaft	Bc distal	Bc prox. trunk.	Bc trunk 374
2494	37.0	37.1	4.3	—	8.7	
2488X	34.6	34.8	4.4	8.0	8.1	
2327X	35.8	36.0	4.6	8.2	8.2	
2548X	32.5	32.6	4.7	7.7	8.3	
2232					9.4	
2459	32.8?	—				
2178X	43.5	43.7	6.0	10.2	10.8	
2177		38.3	4.8	8.1	9.8	
inc 2499X	40.3	40.5	4.8			
Coronade Pflue	40.3?	40.5?	5.0	9.0	10.0	
2250						
Coronade Pflue		38.8?	4.7			
2034						
S.D.						
2224			5.3	8.8?	—	
2499			5.0	—	—	
part distal			4.8	—	—	
2499						
2489		34?	4.1	6.7	—	5.2

437
326
111

32.6
34.0
34.8
36.0
37.1
38.3
38.8
40.5
40.5
43.7

-1.4
-1.8
-1.2
-1.1
-1.2
-1.5
-1.7
-0
-3.2

1 2 2 2 2 1
32 35 37 39 41 43
32 34 36 38 40 42

Tibiotarsus, Marcella 1957

[illegible]

Leiner

May 1964

REDONE

in June 1964

[illegible]

carpus

	a	b	c	d	e	f									
	length head to hind MI	Depth head	length MI	by tail	head to not symph int.	head to dist symph int.	bc	of	ec		length a	b	c	depth th c	cb
Newport	21.2	12.0	17.6	5.1	11.3	33.5	68.32	52.5	64.3	2294	91.4	6.0	65.6	3.7	61.6
S.D. 2281	17.5	9.2	14.5	4.1	9.5	27.8	63.4	52.2	65.5	2083	94.5	5.2	69.8	3.7	71.2
2068	16.7	9.0	12.6	4.1	9.5	25.8	71.6	48.9	75.4	2125	92.7	7.4	80.0	5.0	67.4
2068 pr	18.3	10.8	15.2	4.3 up	10.9	—	70.6	—	71.9	2270	—	5.0	—	3.8	76.0
2069 pr	—	9.9	—	—	—	—	—	—	—	2084	72.8	5.6	76.8	3.7	66.1
2092 pr	—	—	—	—	—	—	—	—	—	2108	—	5.1	—	3.8	74.5
	—	—	—	—	—	—	—	—	—	2134	79.5	4.5	60	—	—
	—	—	—	—	—	—	—	—	—	una	89.0	4.8	53.9	4.1	85.5
	—	—	—	—	—	—	—	—	—	Ping	122.0	6.7	54.9	5.3	79.2
	—	—	—	—	—	—	—	—	—	"	125	7.7	61.5	5.9	76.6
	—	—	—	—	—	—	—	—	—	London	74.9	4.1	53.4	3.2	78.2
	—	—	—	—	—	—	—	—	—	696	—	—	—	—	—

7 def. large
14 " small
5 " quest?

0 = small (definitely)

1957

Nauclaea ferus

	x		a	c	d	e	e	f	g	h							
	outer length	inner length	Br distal	Br prop	Depth trach anter	Depth distal	Gr Br shaft	Depth Sh	Depth ext trach lea	Depth int trach lea	Ratio dc	Ratio de	Ratio dx	Ratio ht to g			
14m	✓																
Pionoda dijeune	55.8	53.9	11.0	10.0	9.2	10.0	4.9	5.4	10.2	8.2	9.2%	19.9%	16.5%	80.3			
distal 34	✓	✓															
# 2507	58.2	56.5				10.0	5.0	6.0	10.2	8.2				80.3			
# 2137	55.2	53.4					4.6	5.3		7.3							
# 2078	55.2	53.2	10.5			9.4	5.0	6.1	9.8	7.8				79.5			
# 2227	51.6				8.5		4.1	5.1				207%					
# 2186				8.7	7.0						8.0%						
# 2260			9.1			8.7	4.1	5.0	9.0	6.0				72.2			
# 2221	47+		9.3+			8.5	4.3	4.9	9.0	7.0				77.7			
# 2508	46.8			8.8	7.4		4.2	4.7	9.5		8.4%	176%	15.8%				
# 2244	47.2		8.4			7.0+	4.3	5.0		5.7							
# 2507	56.2	54.3	10.3			10.1	5.0	5.7	10.0	8.5	7.7%						
# 2507				8.6	6.8												
# 2185	47.3	45.3	8.3	9.1	6.6	8.2	4.2	4.8	8.8	6.8	7.2%		13.9%	76.4	pub. ill.		
# 2668	58.2	56.6		11.0	9.3			5.7			8.0						
# 2681				10.3	7.8												
# 2672			9.4			9.2			9.5	7.7							
2097	50.4																
45891	54.2	50.8			7.8		5.1	5.8									
45438				11.4	8.2				10.7	7.5							
46025																	
46040																	
46022			10.7														
45517																	
45851	46.0	44.4		8.5	6.0		4.3	4.4									
46021																	
45886			8.2														

Lacm. hum 2097
pub. ill. 50.4
g. length 50.4
b. prop 9.2
b. dist 9.3
depth 8.8
dist. end 6.8
depth prop 7.6

2220
54.2
11.7
11.1
10.1
8.1
8.0

1960 list
+ March 1964
1965

14	14.5	15	15.5
UCLA	2066	UCLA	2216
2269	4584	2303	2096
04272324	4584	2219	2292
2289	4584	2077	2558
744	4584	4584	2780
2324	2480	4585	2796
14.1	[2289]	2504	2646
	2206	2427	2343
	2513	2679	2502
	2537	204	2850
	2537	2537	2818
	2553	2802	
	2824	2538	
	2554		
	2280		
	8253		
	2343		

16.4
snay

Humeus
Br. mix end

Compiled

June 23, 1969

from
1960-64

+ 1965 list

17	17.5	18	18.5
1066	UCLA	2304	2098
1173	2220	44	2207
1700	2496	4585	2480
	6180	2695	773
		6182	

19
230
(19-20)

Humeus Br. mix

copied from list of 6.1.64
San Diego

to compare with Cedar Mesa

El Toro - what is it?
Cedar Mesa?

2337 (8.4)	Alma for statistics June 1969	Rn. max layert complete																		
2064	(83.1)	1	2670	20.3																
unnumbered	30.8	2	2331	19.4																
2323	29.6	3	7731	18.6																
45859	28.7	4	2207	18.6																
2069	28.7	5	2480	18.5																
2287	(28.5)	6	1194	18.5																
2257	(27.8)	7	6182	18.3																
2439	27.3	8	2695	18.1																
2497	27.0	9	2304	18.1																
6924	26.5	10																		
45842	26.6																			
2982	26.1																			
2484	25.9																			
2497	25.7																			
2552	25.3																			
2179	25.3																			
2558	24.8																			
2079	24.7																			
2342	(24.2)																			
13) 3379	25.9																			
14) 3345	27.3																			
15) 3368	26.0																			
16) 3342																				

small over

Box B. measured with calipers
flat along deltoïd crest and
taken at greatest protrusion
of bicipital crest

8.25.65

those I'd are well preserved,
clearly adult
those I'd might be younger
immature

all others appear to be
adult but preservation
quite rough appearance
410-6666 int. cond length
not but condyl

travalla

Leucophaea

These are all given on

20°
36° S

intense

Length
* groups

Br
dirt

Rather
prox.
to
the

not Bet condyle left

br
prox

Large 43.6 - 37.0
 5 small 31.1 - 36.1 C

Prox 9.8 - 10.7 Length ext hach 39 - 42 L 31.4 - 6.3 7.7 dist 7.3 - 10.2
 30 - 35 S

26 *Tasomelotaurus*

Mauacalla San Diego
 (3 Corona del Mar, Inc)

311) 436 6, 8 64
 311
 1240
 1244 60
 30142
 30
 120

87 7.2	a gr length with cotyla tubercle to mid trach	b br length with cotyla tubercle to ap trach	c length inter cotyla tubercle with trach	d br length end	e br trach 3ry	f br prox 9.6 38.5	g br sh (mid)	h br sh (mid)	i br sh (mid)	j br sh (mid)	k br sh (mid)	l br sh (mid)	m br sh (mid)	n br sh (mid)	o br sh (mid)	p br sh (mid)	q br sh (mid)	r br sh (mid)	s br sh (mid)	t br sh (mid)	u br sh (mid)	v br sh (mid)	w br sh (mid)	x br sh (mid)	y br sh (mid)	z br sh (mid)	aa br sh (mid)	ab br sh (mid)	ac br sh (mid)	ad br sh (mid)	ae br sh (mid)	af br sh (mid)	ag br sh (mid)	ah br sh (mid)	ai br sh (mid)	aj br sh (mid)	ak br sh (mid)	al br sh (mid)	am br sh (mid)	an br sh (mid)	ao br sh (mid)	ap br sh (mid)	aq br sh (mid)	ar br sh (mid)	as br sh (mid)	at br sh (mid)	au br sh (mid)	av br sh (mid)	aw br sh (mid)	ax br sh (mid)	ay br sh (mid)	az br sh (mid)	ba br sh (mid)	bb br sh (mid)	bc br sh (mid)	bd br sh (mid)	be br sh (mid)	bf br sh (mid)	bg br sh (mid)	bh br sh (mid)	bi br sh (mid)	bj br sh (mid)	bk br sh (mid)	bl br sh (mid)	bm br sh (mid)	bn br sh (mid)	bo br sh (mid)	bp br sh (mid)	bq br sh (mid)	br br sh (mid)	bs br sh (mid)	bt br sh (mid)	bu br sh (mid)	bv br sh (mid)	bw br sh (mid)	bx br sh (mid)	by br sh (mid)	bz br sh (mid)	ca br sh (mid)	cb br sh (mid)	cc br sh (mid)	cd br sh (mid)	ce br sh (mid)	cf br sh (mid)	cg br sh (mid)	ch br sh (mid)	ci br sh (mid)	cj br sh (mid)	ck br sh (mid)	cl br sh (mid)	cm br sh (mid)	cn br sh (mid)	co br sh (mid)	cp br sh (mid)	cq br sh (mid)	cr br sh (mid)	cs br sh (mid)	ct br sh (mid)	cu br sh (mid)	cv br sh (mid)	cw br sh (mid)	cx br sh (mid)	cy br sh (mid)	cz br sh (mid)	da br sh (mid)	db br sh (mid)	dc br sh (mid)	dd br sh (mid)	de br sh (mid)	df br sh (mid)	dg br sh (mid)	dh br sh (mid)	di br sh (mid)	dj br sh (mid)	dk br sh (mid)	dl br sh (mid)	dm br sh (mid)	dn br sh (mid)	do br sh (mid)	dp br sh (mid)	dq br sh (mid)	dr br sh (mid)	ds br sh (mid)	dt br sh (mid)	du br sh (mid)	dv br sh (mid)	dw br sh (mid)	dx br sh (mid)	dy br sh (mid)	dz br sh (mid)	ea br sh (mid)	eb br sh (mid)	ec br sh (mid)	ed br sh (mid)	ee br sh (mid)	ef br sh (mid)	eg br sh (mid)	eh br sh (mid)	ei br sh (mid)	ej br sh (mid)	ek br sh (mid)	el br sh (mid)	em br sh (mid)	en br sh (mid)	eo br sh (mid)	ep br sh (mid)	eq br sh (mid)	er br sh (mid)	es br sh (mid)	et br sh (mid)	eu br sh (mid)	ev br sh (mid)	ew br sh (mid)	ex br sh (mid)	ey br sh (mid)	ez br sh (mid)	fa br sh (mid)	fb br sh (mid)	fc br sh (mid)	fd br sh (mid)	fe br sh (mid)	ff br sh (mid)	fg br sh (mid)	fh br sh (mid)	fi br sh (mid)	fj br sh (mid)	fk br sh (mid)	fl br sh (mid)	fm br sh (mid)	fn br sh (mid)	fo br sh (mid)	fp br sh (mid)	fq br sh (mid)	fr br sh (mid)	fs br sh (mid)	ft br sh (mid)	fu br sh (mid)	fv br sh (mid)	fw br sh (mid)	fx br sh (mid)	fy br sh (mid)	fz br sh (mid)	ga br sh (mid)	gb br sh (mid)	gc br sh (mid)	gd br sh (mid)	ge br sh (mid)	gf br sh (mid)	gg br sh (mid)	gh br sh (mid)	gi br sh (mid)	gj br sh (mid)	gk br sh (mid)	gl br sh (mid)	gm br sh (mid)	gn br sh (mid)	go br sh (mid)	gp br sh (mid)	gq br sh (mid)	gr br sh (mid)	gs br sh (mid)	gt br sh (mid)	gu br sh (mid)	gv br sh (mid)	gw br sh (mid)	gx br sh (mid)	gy br sh (mid)	gz br sh (mid)	ha br sh (mid)	hb br sh (mid)	hc br sh (mid)	hd br sh (mid)	he br sh (mid)	hf br sh (mid)	hg br sh (mid)	hh br sh (mid)	hi br sh (mid)	hj br sh (mid)	hk br sh (mid)	hl br sh (mid)	hm br sh (mid)	hn br sh (mid)	ho br sh (mid)	hp br sh (mid)	hq br sh (mid)	hr br sh (mid)	hs br sh (mid)	ht br sh (mid)	hu br sh (mid)	hv br sh (mid)	hw br sh (mid)	hx br sh (mid)	hy br sh (mid)	hz br sh (mid)	ia br sh (mid)	ib br sh (mid)	ic br sh (mid)	id br sh (mid)	ie br sh (mid)	if br sh (mid)	ig br sh (mid)	ih br sh (mid)	ii br sh (mid)	ij br sh (mid)	ik br sh (mid)	il br sh (mid)	im br sh (mid)	in br sh (mid)	io br sh (mid)	ip br sh (mid)	iq br sh (mid)	ir br sh (mid)	is br sh (mid)	it br sh (mid)	iu br sh (mid)	iv br sh (mid)	iw br sh (mid)	ix br sh (mid)	iy br sh (mid)	iz br sh (mid)	ja br sh (mid)	jb br sh (mid)	jc br sh (mid)	jd br sh (mid)	je br sh (mid)	jf br sh (mid)	jj br sh (mid)	jk br sh (mid)	jl br sh (mid)	jm br sh (mid)	jn br sh (mid)	jo br sh (mid)	jp br sh (mid)	jq br sh (mid)	jr br sh (mid)	js br sh (mid)	jt br sh (mid)	ju br sh (mid)	jv br sh (mid)	jw br sh (mid)	jx br sh (mid)	ky br sh (mid)	kz br sh (mid)	la br sh (mid)	lb br sh (mid)	lc br sh (mid)	ld br sh (mid)	le br sh (mid)	lf br sh (mid)	lg br sh (mid)	lh br sh (mid)	li br sh (mid)	lj br sh (mid)	lk br sh (mid)	ll br sh (mid)	lm br sh (mid)	ln br sh (mid)	lo br sh (mid)	lp br sh (mid)	lq br sh (mid)	lr br sh (mid)	ls br sh (mid)	lt br sh (mid)	lu br sh (mid)	lv br sh (mid)	lw br sh (mid)	lx br sh (mid)	ly br sh (mid)	lz br sh (mid)	ma br sh (mid)	mb br sh (mid)	mc br sh (mid)	md br sh (mid)	me br sh (mid)	mf br sh (mid)	mg br sh (mid)	mh br sh (mid)	mi br sh (mid)	mj br sh (mid)	mk br sh (mid)	ml br sh (mid)	mm br sh (mid)	mn br sh (mid)	mo br sh (mid)	mp br sh (mid)	mq br sh (mid)	mr br sh (mid)	ms br sh (mid)	mt br sh (mid)	mu br sh (mid)	mv br sh (mid)	mw br sh (mid)	mx br sh (mid)	my br sh (mid)	mz br sh (mid)	na br sh (mid)	nb br sh (mid)	nc br sh (mid)	nd br sh (mid)	ne br sh (mid)	nf br sh (mid)	ng br sh (mid)	nh br sh (mid)	ni br sh (mid)	nj br sh (mid)	nk br sh (mid)	nl br sh (mid)	nm br sh (mid)	nn br sh (mid)	no br sh (mid)	np br sh (mid)	nq br sh (mid)	nr br sh (mid)	ns br sh (mid)	nt br sh (mid)	nu br sh (mid)	nv br sh (mid)	nw br sh (mid)	nx br sh (mid)	ny br sh (mid)	nz br sh (mid)	oa br sh (mid)	ob br sh (mid)	oc br sh (mid)	od br sh (mid)	oe br sh (mid)	of br sh (mid)	og br sh (mid)	oh br sh (mid)	oi br sh (mid)	oj br sh (mid)	ok br sh (mid)	ol br sh (mid)	om br sh (mid)	on br sh (mid)	oo br sh (mid)	op br sh (mid)	oq br sh (mid)	or br sh (mid)	os br sh (mid)	ot br sh (mid)	ou br sh (mid)	ov br sh (mid)	ow br sh (mid)	ox br sh (mid)	oy br sh (mid)	oz br sh (mid)	pa br sh (mid)	pb br sh (mid)	pc br sh (mid)	pd br sh (mid)	pe br sh (mid)	pf br sh (mid)	pg br sh (mid)	ph br sh (mid)	pi br sh (mid)	pj br sh (mid)	pk br sh (mid)	pl br sh (mid)	pm br sh (mid)	pn br sh (mid)	po br sh (mid)	pp br sh (mid)	pq br sh (mid)	pr br sh (mid)	ps br sh (mid)	pt br sh (mid)	pu br sh (mid)	pv br sh (mid)	pw br sh (mid)	px br sh (mid)	py br sh (mid)	pz br sh (mid)	qa br sh (mid)	qb br sh (mid)	qc br sh (mid)	qd br sh (mid)	qe br sh (mid)	qf br sh (mid)	qg br sh (mid)	qh br sh (mid)	qi br sh (mid)	qj br sh (mid)	qk br sh (mid)	ql br sh (mid)	qm br sh (mid)	qn br sh (mid)	qo br sh (mid)	qp br sh (mid)	qq br sh (mid)	qr br sh (mid)	qs br sh (mid)	qt br sh (mid)	qu br sh (mid)	qv br sh (mid)	qw br sh (mid)	qx br sh (mid)	qy br sh (mid)	qz br sh (mid)	ra br sh (mid)	rb br sh (mid)	rc br sh (mid)	rd br sh (mid)	re br sh (mid)	rf br sh (mid)	rg br sh (mid)	rh br sh (mid)	ri br sh (mid)	rj br sh (mid)	rk br sh (mid)	rl br sh (mid)	rm br sh (mid)	rn br sh (mid)	ro br sh (mid)	rp br sh (mid)	rq br sh (mid)	rr br sh (mid)	rs br sh (mid)	rt br sh (mid)	ru br sh (mid)	rv br sh (mid)	rw br sh (mid)	rx br sh (mid)	ry br sh (mid)	rz br sh (mid)	sa br sh (mid)	sb br sh (mid)	sc br sh (mid)	sd br sh (mid)	se br sh (mid)	sf br sh (mid)	sg br sh (mid)	sh br sh (mid)	si br sh (mid)	sj br sh (mid)	sk br sh (mid)	sl br sh (mid)	sm br sh (mid)	sn br sh (mid)	so br sh (mid)	sp br sh (mid)	sq br sh (mid)	sr br sh (mid)	ss br sh (mid)	st br sh (mid)	su br sh (mid)	sv br sh (mid)	sw br sh (mid)	sx br sh (mid)	sy br sh (mid)	sz br sh (mid)	ta br sh (mid)	tb br sh (mid)	tc br sh (mid)	td br sh (mid)	te br sh (mid)	tf br sh (mid)	tg br sh (mid)	th br sh (mid)	ti br sh (mid)	tj br sh (mid)	tk br sh (mid)	tl br sh (mid)	tm br sh (mid)	tn br sh (mid)	to br sh (mid)	tp br sh (mid)	tq br sh (mid)	tr br sh (mid)	ts br sh (mid)	tt br sh (mid)	tu br sh (mid)	tv br sh (mid)	tw br sh (mid)	tx br sh (mid)	ty br sh (mid)	tz br sh (mid)	ua br sh (mid)	ub br sh (mid)	uc br sh (mid)	ud br sh (mid)	ue br sh (mid)	uf br sh (mid)	ug br sh (mid)	uh br sh (mid)	ui br sh (mid)	uj br sh (mid)	uk br sh (mid)	ul br sh (mid)	um br sh (mid)	un br sh (mid)	uo br sh (mid)	up br sh (mid)	uq br sh (mid)	ur br sh (mid)	us br sh (mid)	ut br sh (mid)	uu br sh (mid)	uv br sh (mid)	uw br sh (mid)	ux br sh (mid)	uy br sh (mid)	uz br sh (mid)	va br sh (mid)	vb br sh (mid)	vc br sh (mid)	vd br sh (mid)	ve br sh (mid)	vf br sh (mid)	vg br sh (mid)	vh br sh (mid)	vi br sh (mid)	vj br sh (mid)	vk br sh (mid)	vl br sh (mid)	vm br sh (mid)	vn br sh (mid)	vo br sh (mid)	vp br sh (mid)	vq br sh (mid)	vr br sh (mid)	vs br sh (mid)	vt br sh (mid)	vu br sh (mid)	vv br sh (mid)	vw br sh (mid)	vx br sh (mid)	vy br sh (mid)	vz br sh (mid)	wa br sh (mid)	wb br sh (mid)	wc br sh (mid)	wd br sh (mid)	we br sh (mid)	wf br sh (mid)	wg br sh (mid)	wh br sh (mid)	wi br sh (mid)	wj br sh (mid)	wk br sh (mid)	wl br sh (mid)	wm br sh (mid)	wn br sh (mid)	wo br sh (mid)	wp br sh (mid)	wq br sh (mid)	wr br sh (mid</
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Maucalla

Length from foramen
to extreme cotyle

9L
125

② 10.8 10.1 6.2 10.6 9.1 5.0
10.6 ② 10.5 5.8 10.5 9.0 4.9
10.4 9.7 5.6 9.8 8.0 4.8
9.4 7.3 5.6 9.3 8.3 4.6
9.2 9.2 5.1 8.7 8.0 4.5
9.1 8.8 5.0 8.5 7.9 4.3
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(unmed dist cotyle) Br middle sh Br dist pur

	Length	Br pur	Br calca carina at Base					Br. dist	Depth dist	sh.		Br. pur	Depth pur			
1067																
2250	31.1	10.0	6.4			L	46022	10.8	10.0	6.2	-					
1067																
2034	29.7	-	-			L	2507	10.4	10.0	5.6	4.6					
								eroded	eroded							
						L	2078	10.6	9.7	5.8	4.8					
								eroded	eroded							
						L	2672	9.6	9.3	5.4	4.5					
1071																
2178	33.4	10.8	7.1													
uc																
45852	30.3	10.5	6.7													
2199	29.3	-	5.8			S	2848	8.8	8.8	5.0	4.1	-	7.1			
2327	28.1	8.1	5.6			S	45851	8.3	-	4.7	3.9	8.4	6.0			
2488	26.9	8.0	5.7													
6484	27.9	-	-													
2548	24.9	8.4	5.6													
2682	24.2	-	5.1			S	2221	9.2	8.5	4.9	4.1					
2831	27.8	-	5.9													
2177	29.6	9.8	7			L	46025									
						L	45881									
						S	2227			4.8	3.9	-	8.3			
						S	2507	-	-	-	4.0	8.2	6.2			
						S	2186	-	-	-	3.7	8.5	6.9			
						S	45888	-	-	-		8.0	-			
						S	2347	-	-	-	3.8	-	-			
						S	2507	-	-	-		7.4	-			
						L	Type	10.8	10.1	5.8	4.5	9.8	9.0			

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June 15, 1969

Revised breakdown into two species of Mancalla, San Diego

No. Spec. Max Mean Min Ratio max V
to min.

Coracoid
Large 8 51.9 49.8 45.0 122 6.6
Small 12 41.5 40.3 38.5 108 4.4

Humerus
Large 7 80.0 76.5 71.0 120 6.6
Small 23 66.6 62.7 56.4 118 4.0

Ulna
Large 6 33.1 29.9 28.5 116 5.9
Small 14 27.8 26.0 24.2 115 5.3

Carpometa.
Large 5 37.1 36.1 35.0 106 6.2
Small 7 33.2 31.7 29.7 111 4.4

Radius
Large 3 31.7 30.5 29.5 107 3.6
Small 4 27.0 25.3 24.5 111 4.7

Femur
Large 25 53.6 52.7 51.5 103 1.8
Small 89 48.6 45.7 42.6 112 4.2

Tibiotarsus
Large 5 98.7 93.6 91.4 108 3.0
Small 9 82.2 76.2 72.0 114 4.0

Tarsometatars
Large 3 43.6 39.8 37.5 116 8.3
Small 56 36.1 34.0 31.1 118 6.3

Scapula
Large 5 14.4 13.4 12.2 118 6.6
Small 12 11.8 10.8 10.2 105 7.7

4 43.6 39.5 37.0 118 V=7.1
5 36.1 34.0 31.1 116 V=6.3

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Interpretation of the distributional curves

The separation of *M. milleri* from *M. diegense* is based primarily on size. Qualitative ~~features~~ ^{distinctness} that are suggested in certain elements may be valid but could be attributable to better preservation. Such distinction to actual difference is particularly notable in the coacoid which, in *M. milleri* appears to have a ^{higher} more attenuated tip of the furcular facet. In the tibiotarsus, ~~some~~ ^{many} specimens in which the ligament bridge is preserved are certainly of *M. milleri*. The other two occur on specimens that are ~~one of~~ ^{none of} the specimens over 2 of the 9 specimens in which the tendinal bridge is preserved are small. The other two are in the questionable zone with respect to size (80.8 & 82.0 mm ^{including}). None of the obviously large tibiotarsi has the complete bridge. This suggests either that the bridge was actually stronger in *M. milleri* or that a greater proportion of the bones of these species were fully adult.

373	139.29	242.7	28
384	1474.56	2427	28
420	1764.00	189	224
3) 1177	4629.85	954	56
M 39.2	-4614.09	62929	784
	2) 15.76		
	7.88 22		
	2.807.1		
	3972284.0		
	2734		
	660		

	Calomelacarpus					Calomelabarius					Calomelabarius					Calomelabarius					Calomelabarius				
	Length to end M2	Length to pre M1	Depth to pre M1 (cut crest)	Be Trachla	Length to end of ant	Length to mid troch	Length to sh		Length to end of ant	Length to mid troch	Length to sh		Length to end of ant	Length to mid troch	Length to sh		Length to end of ant	Length to mid troch	Length to sh		Length to end of ant	Length to mid troch	Length to sh		
UCLA	31.8	14.4	9.0	3.8	S	4.8	5.2		UCLA	31.8	14.4	9.0	3.8	S	4.8	5.2		UCLA	31.8	14.4	9.0	3.8	S	4.8	5.2
2281	31.8	14.4	9.0	3.8	S	4.8	5.2		2281	31.8	14.4	9.0	3.8	S	4.8	5.2		2281	31.8	14.4	9.0	3.8	S	4.8	5.2
2345	31.0	13.7	9.3	3.9	S	4.8	5.2		2345	31.0	13.7	9.3	3.9	S	4.8	5.2		2345	31.0	13.7	9.3	3.9	S	4.8	5.2
2825	32.8	14.1	—	3.6	S	4.8	5.2		2825	32.8	14.1	—	3.6	S	4.8	5.2		2825	32.8	14.1	—	3.6	S	4.8	5.2
2650	32.2	14.4	—	3.9	S	4.8	5.2		2650	32.2	14.4	—	3.9	S	4.8	5.2		2650	32.2	14.4	—	3.9	S	4.8	5.2
2060	35.0	15.3	—	3.8	S	4.8	5.2		2060	35.0	15.3	—	3.8	S	4.8	5.2		2060	35.0	15.3	—	3.8	S	4.8	5.2
2068	29.7	12.6	8.8	3.8	S	4.8	5.2		2068	29.7	12.6	8.8	3.8	S	4.8	5.2		2068	29.7	12.6	8.8	3.8	S	4.8	5.2
2068	—	15.0	10.4	4.0	S	4.8	5.2		2068	—	15.0	10.4	4.0	S	4.8	5.2		2068	—	15.0	10.4	4.0	S	4.8	5.2
45862	33.2	14.4	9.4	4.1	S	4.8	5.2		45862	33.2	14.4	9.4	4.1	S	4.8	5.2		45862	33.2	14.4	9.4	4.1	S	4.8	5.2
45861	35.3	15.2	10.6	4.6	S	4.8	5.2		45861	35.3	15.2	10.6	4.6	S	4.8	5.2		45861	35.3	15.2	10.6	4.6	S	4.8	5.2
2060	—	15.0	10.5	4.1	S	4.8	5.2		2060	—	15.0	10.5	4.1	S	4.8	5.2		2060	—	15.0	10.5	4.1	S	4.8	5.2
LACM	—	—	—	—	S	4.8	5.2		LACM	—	—	—	—	S	4.8	5.2		LACM	—	—	—	—	S	4.8	5.2
2273	—	—	—	—	S	4.8	5.2		2273	—	—	—	—	S	4.8	5.2		2273	—	—	—	—	S	4.8	5.2
2542	35.5	15.3	10.8	4.6	S	4.8	5.2		2542	35.5	15.3	10.8	4.6	S	4.8	5.2		2542	35.5	15.3	10.8	4.6	S	4.8	5.2
2242	—	—	—	—	S	4.8	5.2		2242	—	—	—	—	S	4.8	5.2		2242	—	—	—	—	S	4.8	5.2
2545/2060	36.0	15.2	9.7	4.3	S	4.8	5.2		2545/2060	36.0	15.2	9.7	4.3	S	4.8	5.2		2545/2060	36.0	15.2	9.7	4.3	S	4.8	5.2
2305	—	14.9	10.3	4.4	S	4.8	5.2		2305	—	14.9	10.3	4.4	S	4.8	5.2		2305	—	14.9	10.3	4.4	S	4.8	5.2
15373	36.7	15.3	—	4.6	S	4.8	5.2		15373	36.7	15.3	—	4.6	S	4.8	5.2		15373	36.7	15.3	—	4.6	S	4.8	5.2
15392	35.0	15.3	10.5	4.0	S	4.8	5.2		15392	35.0	15.3	10.5	4.0	S	4.8	5.2		15392	35.0	15.3	10.5	4.0	S	4.8	5.2
15391	36.0	15.3	10.2	4.6	S	4.8	5.2		15391	36.0	15.3	10.2	4.6	S	4.8	5.2		15391	36.0	15.3	10.2	4.6	S	4.8	5.2
15370	35.0	15.3	—	—	S	4.8	5.2		15370	35.0	15.3	—	—	S	4.8	5.2		15370	35.0	15.3	—	—	S	4.8	5.2
15416	31.1	—	—	—	S	4.8	5.2		15416	31.1	—	—	—	S	4.8	5.2		15416	31.1	—	—	—	S	4.8	5.2
15373	—	—	—	—	S	4.8	5.2		15373	—	—	—	—	S	4.8	5.2		15373	—	—	—	—	S	4.8	5.2

Cedrus
ferrug

15365	—	—	—	—	—	10.9	5.0 x 6.2 ^{dist}
15425	—	—	—	94	104	—	4.7 x 5.6
1284	—	53.7	52.1	9.5	16.6	10.9	4.6 x 3.5
1533	54.6	—	52.3	9.2	10.3	10.8	5.0 x 6.3

Comparison of ulnae from San Diego (L & S)

Coronado Mar

Leisure World 65/20-65/21

Cedar Id

Leicippitalis attach wide shallow
shallow
shallow

Cd m - Cr, prox ^a 6.55 C to sh mid 4.0 ^a Scars 5.1 x 2.5
depth 1.9 10.00 d depth 1.1 6.8 int.

Palmar side of shaft above ^{distal} articulation (which is missing)
is flat and bordered by two strongly marked muscle ridges
main muscle ridge starts center of palmar side below cotylos
& descends diagonally as a straight line to int edge
of shaft about 4.3 mm above distal art.; then sweeps back
medial again slightly - ending in a longitudinal
ridge along int edge of shaft above art. (This straight portion
is $\frac{3}{4}$ mm long)

Olecranon is blunt with a very shallow depression between
it & cotylos.

Ridge from olecranon to cotylos very close to intercotylos ridge

San Diego Large ^a 6.6 ^c 3.8 ^a 3.9 x 4.5
#2322 ^d 6.3 ^{length} 28.8

#2064 ^c 4 x 6.8
^d 1 x 3.8
^{length} 32 + 0

^a 6.6 ^c 3.8 ^a 4.5 x 3.1

2248 ^c 9.1 ^d 6.2

mean
29.8

Palmar side above distal art. slants off toward ext. side
Between 2 muscle ridges.

Main muscle ridge slightly curved as it descends. Return from
ext edge is almost negligible (no straightaway, sort of curves back in). In
none is this as evident ~~there~~ ^{not} is the line as straight.

Olecranon blunt, but depression bet it & cotylos more

marked (deeper) than in Cd m well internal to intercotylos ridge ✓ UCL A

San Diego Small (6)

UCMP	UCMP	UCMP	UCMP	UCMP	UCMP	UCMP	UCMP	UCMP	UCMP
2082	2497	2552	4924	2497	4585	4585	4585	4585	4585
a 5.4	5.7	5.4	4.8	5.3	5.9	5.8	5.8	5.8	5.8
b 7.9	8.2	-	7.5	8.0	8.8	3.3	3.3	3.3	3.3
c 3.1	3.3	3.3	3.2	3.4	3.0	5.6	5.6	5.6	5.6
d 5.1	5.5	5.6	5.6	5.2	5.0	4.0 x 2.8	4.0 x 2.8	4.0 x 2.8	4.0 x 2.8
e 3.9 x 2.7	3.8 x 3.2	3.8 x 2.9	3.3 x 2.6	4.0 x 2.7	3.9 x 2.6	28.4	25.3	25.3	25.3
length 25.6	25.1	26.6	24.6	26.3	26.1	Large	Large	Large	Large

length
intercotylos
condyle

Chairs like large one

mean
25.8

Sensine world

Cedros Id.

$$\begin{array}{r} 12 \overline{) 3832} \\ \underline{12 \overline{) 3832}} \\ 28 \end{array}$$

2230	14.4 -
45860	14.4 -
2264	13.2 -
2176	13.1 -
2049	12.2 -
2506	11.8 -
45882	11.5 -
22245	11.5 -
2070	11.3 -
2218	11.0 -
2210	10.8 -
① 2536	10.7 -
2270	10.4 -
② 2534	10.5 -
2297	10.3 -
2252	10.3 -
2574	10.2 -

Radius - distinction Cdm from S.D

Ext surface of shaft lacking depth of depression below head

Shaft smoother, less rugose on entire ext surface

also more convex & less rugose above distal end on median (concave surface)

Tibia distinction Cdm from S.D

The long tibia S.D have deeper groove post along fibular crest

Muscle attachment proximal ^{shorter} & broader, flatter more ^{post'ly} ~~placed~~ ^(mus. dig. post. at tibiae end) ~~placed~~ ^{add. were below proximal surface} in Cdm. Long, thin & straight in S.D & Cedus

Semimembran. ^{or prox} ^{least depth} ^{proximal} ^{surface}
 8.5 7.3 9.0

Distals 93.2 93.0

2681 83+ —

2550 82.4 82.2

2308 93.1 95.0

2477 92.0 92.2

Distal 2125 93.0 93.0

UCL 2294 91.6 91.4

2322 94.2 94.2

7) 6291 89.8

98
 787
 12
 1027
 99
 37

2088
 2209
 2478
 2088 (prox)
 2209 (prox)
 2478 (prox)
 2088 (prox)
 2209 (prox)
 2478 (prox)
 2088 (prox)
 2209 (prox)
 2478 (prox)

Tibia S.D	a	b	c	d	e	f	Ratio	# of tibiae	Small
2628	72.5	7.1	7.5	7.3	4.9	3.3	10.3	6.5	8 mls complete small
2549	76.7	—	7.5	7.7	4.9	3.3	9.7	—	12 dist ends, 5 proximal
2083	74.4	7.0	7.3	7.2	4.8	3.6	9.8	6.4	the comp & dist
2478 (with hum)	76.3	—	7.3	7.2	4.8	3.6	9.8	6.4	2 mls hum bridge
6183 R	—	—	9.1	9.1	—	—	—	—	4 dist " "
1183 R	—	—	8.9	9.3	—	—	—	—	—
2183 R	—	—	8.1	9.0	—	—	—	—	—
✓ 2681 (with hum)	—	—	8.3	8.0	—	—	—	—	—
✓ 2081 " "	—	—	8.2	8.2	—	—	—	—	—
X Cedus 15373	83.8	—	8.7	9.3	6.2	4.2	10.4	7.4	—
X Cdm 2424	86.4	—	8.7	9.3	6.2	4.2	10.1	8.0	—
S.D 3125	93.2	9.3	—	—	7.0	4.8	—	7.5	—
✓ 2550	82.0	—	8.7	9.0	6.2	4.0	—	7.5	—
X Cedus 1284	—	—	9.2	9.2	—	—	—	—	—
✓ 2308	93.1	9.0	9.0	9.8	5.9	4.5	9.6	6.3	—
✓ 2477	92.0	9.1	9.1	9.1	5.9	4.5	10.2	6.4	—
2125	92.9	9.3	—	—	7.0	4.8	—	7.0	—
UCL 2294	91.6	—	8.6	8.8	—	—	9.4	—	—
End 2345	86.9	7.0	7.2	7.5	4.9	3.4	9.4	6.3	—
UCL 2270	98.8	9.4	10.6	9.1	—	—	10.7	—	—
2322	94.2	—	—	—	—	—	—	—	—
2177	88.8	8.3	8.3	—	—	—	—	—	—

Small
 8 mls complete small
 12 dist ends, 5 proximal
 the comp & dist
 2 mls hum bridge
 4 dist " "

Large
 7 comp or nearly XL
 2 " " " "

6' dist
 bridge in 2 L (none in XL)
 L = size of Cedus + Cdm

100
 90
 94
 92
 87
 87
 82
 83
 89
 91
 100
 108
 1082
 81
 1001 (9.1)
 95
 11
 1082
 108

	a dent in sh	b at attach	c per	d length	e dist	f ab	g ac	h ed	i ad
2499	4.2	6.4	8.5	37.1+	—	65.6	49.5	—	11.3
2327	4.4	5.9	8.0	36.0	7.85	74.6	55.4	21.8	12.2
6454	4.6	6.3	—	35.809	7.7	73.2	—	21.4	12.8
2548	4.4	5.6	8.4	32.4	7.8	78.6	52.5	24.0	13.5
2682	3.9	5.2	—	31.2	7.3	75.2	—	23.4	12.5
2178	5.4	7.7	10.8	43.6	9.9	70.2	50.0	22.2	12.4
15425 Cedrus	4.75	6.2	10.0	37.3+	9.4	76.6	47.5	25.6	12.7
15374	5.7	8.0	10.2	42.0	—	71.0	56.0	—	13.5
Elton	4.9	6.6	9.3?	38.1	—	—	—	—	—

S. D. Mammelle

Tarsi

Crane	a br base foot	b int tip foot	c Depth ant part foot out edge	d Ba	e ca	f length from below scapula to humerus	g below fore acet	h Cedrus	i depth into	j dist ext	k depth boft	l dist ant
Elton 65120A	7.0	5.5	6.3	78.5	L	16.15	L	15379	8.5	—	—	—
SD 2510	8.2	5.5	5.9	74.3	—	17.2	L	15378	7.4	—	—	—
2422	8.4	5.1	6.25	60.2	—	16.7	L	RAT 1284	9.1	8.7	9.0	9.2
2229	5.75	5.0	4.9	65.0	—	13.6	—	15373	8.7	8.7	8.7	9.3
2555	5.9	4.7	5.2	78.8	—	14.2	—	—	—	—	—	—
2627	5.4	5.1	5.2	94.4	—	13.9	—	—	—	—	—	—
Cedrus 15373	7.5	5.3	5.9	70.7	—	15.6	L	—	—	—	—	—
547899	—	—	5.4	—	—	15.5	—	—	—	—	—	—
2498	7.7	—	6.7	—	—	19.6	6.0	—	—	—	—	—
Cedrus 15410L	—	—	—	—	—	18.0	5.8	—	—	—	—	—
" R	7.5	5.8	6.2	—	—	—	6.0	—	—	—	—	—
2067	8.1	5.4	6.5	—	—	18.0	6.0	—	—	—	—	—

June 27, 1969

Cedrus	ex. R	S	ca	Part	depth
15110	14.2	6.7	5.3	—	—
15410	12.5	—	—	—	—
15373	12.6	—	—	—	—
	3) 40.3	—	—	—	—
	13.4	—	—	—	—

max. humerus 72.7 2670 Humerus 85.2
 48.5 2498 Coracoid 56+ 19.6 (to scapula) 51.7 49.1
 83.9 64615 Tibia 98.7 12.9 16.7
 93.2 88.7

	h2 1st max.	1st max. palatal process	in bone 8	across cranial base	
Skull	34.5	31.9	32.8	21.4	22.7 19.3 3.4 3.1
2325				28.6?	
6182					
(2333)	44.4	39.8	40.0?	31.5	large
2661 (h2)		37.9		29.1	
2495					
2063 (h2)	38.7	34.0			
2349		33.9	34.1	27.0	
2180	38.0	34.2	35.7	25.8	
2151		34.17		26.7	
2346				28.0?	

+ illus. 2076
V2063 (wt)
V2230 (wt)

+ others listed on label
(frag?) 2156
2173
2173

	h2	1st max. ant. to post.	pp. for base of brain	
Skull 2281	8.4	14.1		
Leptopithecus	72.7	8.0	12.6	15.0
(46018)		9.3	14.3	
2270				+ another 2270a
Humerus	61.7	14.9		
V5520				
in wing plate				

	h2		
Pelvis			
2281	33.5		
2182 mt	30.8		
Sacrum			
2165	86.6		

+ old list 2073 pelvis prop.
2153 " "
2170 " "
2139 sacrum

	h2	length	ant. to base of rostrum
2182 illus.			11.4
2340	59.3		
Cranium			
2204	26.1		
2633	28.8	33.4	7.4

belong together

San Diego Mammals

Y pen	breadth & length		depth	head	USE billions length	other (Greater) length
	Br dist	Br prox				
Type	11.3 (10.9)	11.8 (10.1)	9.2	—	53.1	56.3 Gr.
2220	11.1 (10.3)	11.7 (11.6)	9.0	—	57.5	54.2 Gr.
46025	—	11.0 (10.8)	8.1	—	—	—
2681	—	10.4 (10.1)	7.8	—	—	—
46022	10.8 (10.6)	—	—	—	53.6 est	56.7 est
2507	10.3 (10.3)	—	—	—	52 est	55 est
2078	10.5 (10.3)	—	—	—	53.6 est	58 est
2668	—	11.0? (10.7?)	9.2	—	47.4	49.8
139 st. coll.	9.4	9.2	7.7	—	48.0?	50.4
2097	9.3	9.2	7.4	—	44.4	46.7
2508 coll	—	9.1	7.3	—	46.5	48.9
2078 (2)	9.3	8.6	7.4	—	50 est	omit
253 st. coll.	9.3	9.0	—	—	45.2	47 est
2672	9.6 + (on)	—	7.6	—	—	47 est
024 st. coll.	9.1	—	—	—	48.6	51.1
2221	9.3	9.2	—	—	—	—
2345	9.0	—	—	—	—	47 est
2260	—	—	—	—	—	—
2244	8.8	—	—	—	42.6	44.8
2848	8.8?	—	7.2	—	44.7	47.3
2185	8.7 (8.5)	9.2 (9.0)	6.4 (6.3)	—	41.8 est	43 est
2162	—	8.9	—	—	out	—
2186	—	8.7	7.0	—	—	—
2507	—	8.5	6.3	—	44.1	46.5 est
45851	—	8.3?	6.1 ap.	—	—	—

Mauvalla Tarsi

11.3.65

Difference between Corona del Mar & San Diego as before noted.

Difference between large & small San Diego POSSIBLY. — small has more columnar shaft and relatively more slender ends

Cedros Id. resembles large San Diego.

Only one very clearly marked nearly complete large San Diego tarsus. The Cedros Id. specimens

provide a size range.

	Tarsus measurement	Ext. length	Br. prox	Br. dist	Heart to th	Br. sh at apophysis
San Diego	2178	441 ±	10.8	9.8?	5.3	7.0
UCMP	45852	—	10.7	7.4	4.4	7.5
Cedros	15374	39	10.3	—	5.6	—
	15425	37.4	10.1	8.7	4.8	6.3
	15376	—	10.9	—	—	7.8
	15388	—	9.9	—	—	—
	15418	—	—	—	5.3	—
	15402	—	—	—	4.4	—
	15375	—	—	—	4.7	—
Small San Diego	2327	34	8.1	7.9	4.4	5.5
	2682	31	—	7.3	3.9	4.7
	2548	32.5	8.3?	7.2?	4.35	5.35
? 2232	—	—	9.4	—	—	6.1

$$\begin{array}{r}
 42.0 \\
 38.4 \\
 37.3 \\
 \hline
 3 \overline{) 117.7} \\
 \underline{39.2} \\
 117.7 \\
 \underline{39.2} \\
 12.09 \\
 n-1=2 \overline{) 12.09} \\
 \underline{6.045}
 \end{array}$$

$$\sqrt{6045} = 2.458 \times 100 = \frac{245.8}{39.2} = V$$

$$\begin{array}{r}
 6.2 \\
 39.2 \overline{) 245.8} \\
 \underline{235.2} \\
 10.60
 \end{array}$$

$$\begin{array}{r}
 42 \quad 384 \quad 117.7 \\
 42 \quad 384 \quad 117.7 \\
 \hline
 84 \quad 1536 \quad 8239 \\
 168 \quad 3072 \quad 8239 \\
 \hline
 176 \quad 456 \quad 117.7 \\
 1152 \quad 117.7 \\
 \hline
 147456 \quad 117.7 \\
 117.7 \\
 \hline
 3 \overline{) 13853.29146177.6} \\
 \underline{12} \\
 18 \\
 \underline{18} \\
 5 \\
 3 \\
 \underline{23} \\
 21 \\
 \underline{22} \\
 21 \\
 \underline{21} \\
 19
 \end{array}$$

$$\begin{array}{r}
 37.3 \\
 37.3 \\
 \hline
 1119 \\
 2411 \\
 \hline
 1119 \\
 \hline
 139129
 \end{array}$$

$$\begin{array}{r}
 246 \\
 246 \\
 \hline
 1476 \\
 984 \\
 \hline
 492 \\
 605.16
 \end{array}$$

$$\begin{array}{r}
 245 \\
 245 \\
 \hline
 1225 \\
 980 \\
 \hline
 490 \\
 6.0025
 \end{array}$$

$$\begin{array}{r}
 245.8 \\
 245.8 \\
 \hline
 19664 \\
 12290 \\
 \hline
 9832 \\
 4916 \\
 \hline
 6.041764
 \end{array}$$

$$\begin{array}{r}
 38.3 \quad 1466.89 \\
 43.6 \quad 1900.96 \\
 \hline
 2 \overline{) 81.9} \quad 3367.85 \\
 \underline{3353.80} \\
 = m \quad 40.95 \\
 n-1=1 \overline{) 14.05} = 12
 \end{array}$$

$$s = \sqrt{14.05} = 3.75$$

$$\begin{array}{r}
 819 \\
 819 \\
 \hline
 7371 \\
 819 \\
 \hline
 4552 \\
 2 \overline{) 6707.61} \\
 \underline{3353.80}
 \end{array}$$

$$\begin{array}{r}
 35 \\
 35 \\
 \hline
 175 \\
 105 \\
 \hline
 1225 \\
 18.44
 \end{array}$$

$$\begin{array}{r}
 37.5 \\
 37.5 \\
 \hline
 1875 \\
 2025 \\
 \hline
 1125 \\
 14.0625
 \end{array}$$

$$\begin{array}{r}
 1005 \quad 375 \\
 m \quad 4095 \\
 \hline
 4095 \overline{) 37500.1} \\
 \underline{36855} \\
 6450
 \end{array}$$

1957

Mammalia Lengths - showing 2 sizes

Coracoid

54.5

52.3

50.0

49.9

48.9

48.4

140%

373 523

373

1500

14.92

50

42.1

41.4

41.1

40.7

40.1

39.7

39.0

37.3

Ulna

31.6

28.5

28.0

27.7

27.0

26.4

25.8

25.7

25.1

24.4

24.3

24.0

24.0

23.9

23.6

23.3

22.4?

Humerus

85.3 - 4.7

81.0 - 2.4

78.6 - 1.9

77.7 - 1.6

77.1 - 1.3

74.8 - 3.3

71.0 - 3.7

4.4
66.6 miller

66.4

65.0 miller

63.9

63.7

63.6

63.3

63.2

63.2

62.7

62.7

61.9

61.3

58.2

56.4 miller

15) 94570 (62.8 average)

T. biotatus

94.3

92.7 -

92.7 -

92.2

91.4 miller -

82.00

80.8 x

78.4

77.3

77.3

76.8

76.5

74.5 -

73.4

72.8 -

71.6 -

T. auroretatus

S.D. 43.7 x 38.3

Cor. del. 41 - 37.1

" " 40.5 36.0

S.D. 40.5 34.8

32.6

x x these bones were practically articulated

Hog 01a		min	max	comp	10%	aver	(2 specimens)	Previous aver
Tarsus		38.3	43.7	41.7	41.0	41.0		41.0
94.7%	Tibia	82.6	71.7	106.9	82.3	7	"	81.7 79.5 +
same	Ulna	97.3	56.0-47.3	113	51.9	4	"	52.0
73.4%	Humeri (gr)	63.3	78.7-56.4	89.9	64.4	11	"	59.8 +
	(to include)		53.1-39.5		44.4	12	"	
same	Ulna	32.6	31.5-20.5	49%	25.9	9	"	25.8
	Carponeta	66.7	35.1-29.7	78.7	32.9	4	"	32.2
113	Coracoid	100.0	51.1-39.0	130	44.4	8	"	50.2 -

① The ulna which seemed so surprisingly small - no specimens in the earlier material Exceed the largest of the others found

② Tibia

③ Coracoid - 3 more large ones but 4 small big ones down.

Ulna 2097 (50.2 mm) nearest average (-1.7)
 ✓ Tibia none average 2177 nearest but small 80.4 (-2 mm)
 ✓ Tarsus none average (21.77 = 38.3) (= -3 mm)
 Humeri 2096 (63.7) nearest aver (= -1.7)
 Ulna 2082 (24.4) (-1.5 mm)
 Carponeta none average (Miller's 2281 is 31.7 = (-1.2 mm) (unsubst))
 ✓ Coracoid none near aver, 2243 (41.4) = (-3 mm)
 2229 aver small 40.7

195

8 9 10 11 prodest capus

85 9 95 10 105 11 115 "

20 21 22 23 24 25 26 27 28 29 30 31

Ulu

26 27 28 29 30 (31) 32 33 34 corasoid

Mauvilla Oct 26, 1940

27 complete turns $85.2 - 56.4 = 28.8$ dif.
max is 151.90 g min.

300 Great auz $114 - 96 = 18$ ^{min} dif.
max is 119.90 g min

Mauvilla Lumei might break into 2 series

$85.2 - 71.0 = 14.2$ dif. ; max is 120.90 g min

$67.6 - 56.4 = 11.2$ " " " 120.90 " "

July 1904

	comp	Prev. #	without average	Prev. range	No. now available	Range now	Carana del marino range
Coracoid	2	50.1	48.7 - 51.7		20 7 smaller than average	44.5 37.3 - 56.4 (66.7%)	1
Humerus	4	62.9	56.4 - 66.6		33 6 larger	65.5 56.4 - 85.2 (60.3%)	
Ulna	4	22.2	24.3 - 31.6 (33.1 same as now)		13 no change	27.3 24.3 - 33.1 (72.6%)	
Radius	1	27.0	27.0		1 2 smaller than average	27.9 24.2 - 31.7 (64.9%)	
Carpometacarpus	3	32.2	29.8 - 35.2		10 4 larger	33.6 29.8 - 37.1 (79.8%)	3
Scapula	4	52.0	47.3 - 56.3		7 3 smaller	43.9 43.3 - 56.3 (64.4%)	
Tibiotarsus	5	82.4	72.8 - 92.7 (93.0 now)		15 (smaller than average)	82.4 71.5 - 98.7 (72.5%)	
Tarsometatarsus	2	41.0	38.3 - 43.7		8 (smaller than prev. min.)	36.1 31.1 - 43.7 (71.9%)	2
Scapula	4	11.3	10.2 - 13.0		10	11.3 10.2 - 13.0 (78.5%)	

Other
not
needed

~~Vertebrae~~ 2
~~Skull parts~~ 3
~~Furcula~~ 1
~~Coracoid~~ 5
~~Scapula~~ 5
~~Humerus~~ 27
~~Ulna~~ 5
~~Radius~~ 1

13
10
1

2,34
2,214
936
702
468
54756

324
238
95

47
42
329
188
2209

475
475
2375
3320
1900
225625

33.1
30.8
29.8
28.2
27.4
26.9
26.5
25.7
26.5
26.3
25.2
25.9
25.4
29.3

$$\begin{array}{r} 14 \overline{) 388.2} \quad (27.3) \\ \underline{28} \\ 102 \\ \underline{98} \\ 46 \end{array}$$

$$\begin{array}{r} 82.4 \\ 14 \overline{) 115.38} \\ \underline{98} \\ 172 \\ \underline{14} \\ 33 \\ \underline{28} \\ 55 \end{array}$$

$$\begin{array}{r} 29.8 \\ 31.8 \\ 35.2 \\ 3 \overline{) 967} \\ \underline{322} \end{array}$$

$$\begin{array}{r} 25.4 \\ 26.3 \\ 24.0 \\ 33.1 \\ 4 \overline{) 1088} \quad (27.2) \\ \underline{8} \\ 28 \end{array}$$

$$\begin{array}{r} 80.8 \\ 72.8 \\ 74.5 \\ 91.4 \\ 92.7 \\ 5 \overline{) 4122} \quad (82.4) \\ \underline{40} \\ 12 \\ \underline{10} \\ 22 \end{array}$$

$$\begin{array}{r} 50.4 \\ 54.2 \\ 56.3 \\ 47.3 \\ 4 \overline{) 2082} \quad (52.0) \\ \underline{20} \\ 8 \end{array}$$

$$\begin{array}{r} 56.4 \\ 63.7 \\ 65.0 \\ 66.6 \\ 4 \overline{) 2517} \quad (62.9) \\ \underline{24} \\ 17 \\ \underline{16} \\ 37 \end{array}$$

$$\begin{array}{r} 21004 \quad (50.4) \\ \underline{1004} \\ 1096 \\ \underline{1096} \\ 0 \end{array}$$

828
16

Seum - Manicalla San Diego 7.13.64

Bx. Sh.

length proc ma

Caipometacarpus

length

3.5-1.7 } 1
3.6-0 }
3.7-0 } 2
3.8-2 }
3.9-1 } 3
4.0-2 }
4.1-1 } 2
4.2-1 }
4.3-1 } 1
4.4-0 }
4.5-1 } 2
4.6-1 }
4.7-1 } 4
4.8-2 }
4.9-0 } 1
5.0-1 }

~~12-12.4~~
12.5-12.9-1
13-13.4-1
13.5-13.9-0
14-14.4-2
14.5-14.9-4
15-15.4-5
15.5-15.9-0
16-16.4-0
16.5-16.9-1
17-17.4-2

cor del mar

12-1
13-1
14-14.5-3
14.6-14.9-2
15 4

29-1 } 2
30-1 } 2
31-1 } 2
32-1 } 2
33-1 } 1
34-0 } 4
35-3 } 4
36-1 } 2
37-1 } 1
38-
39-
40-
41-1 cor del mar

508
462
106

~~29.5-31.4-2~~
~~31.5-33.4~~
~~33.5-35.4~~
~~35.5-36.4~~

length

29.5-30.4-1
30.5-31.4-1
31.5-32.4-1
32.5-33.4-2
33.5-34.4-0
34.5-35.4-2
35.5-36.4-2
36.5-37.4-1

• 8 May 1969

Compiles from previous records

Outstandingly large SD

Corruve 56.0

Prins 85.2

$$1 \text{ dec} = 0.861$$

Mauvilla various sites

	Cedar			Corona del Mar			"El Toro"			San Diego Jay			San Diego snail			
	max	mean	min	max	mean	min	max	mean	min	max	mean	min	max	mean	min	
coracoid length	45.5	44.2	43.4							50.1	47.3	43.5	→	41.5	40.1	37.3
H from nape to occiput	16.0		15.5	18.8						19.8	17.1	15.8		14.6	14.0	13.7
B. below nape to eye	5.9		5.75	5.9						6.3	5.7	5.0		5.1	4.8	4.0
B. from ear to eye	7.3			8.7						8.6	7.9	7.0		6.2	5.6	5.2
H. from ear to eye	72.7		72.4							85.3	76.6	71		66.6	62.7	56.4
length	80									80	75.5	71		66.6	62.7	56.4
B. prox	20.3	17.9	17.0							20.3	18.7	18.2		15.7	15.1	14.2
B. dist	7.2		7.0				7.1			8.0	6.9	6.1		6.3	5.8	5.2
ulna length	32.5	30.7	28.7				30	(3)	29.7	33.0	29.9	28.5		27.8	26.0	24.2
length	31.6	30.0	28.5				30.0	(5)	29.7	32.0	29.8	27.9		26.3	25.1	23.8
B. prox	7.2	6.6	6.2	6.6			6.5	(4)	6.4	6.6	6.3	6.1		5.8	5.3	4.8
Depth to prox cot	10.4	9.7	8.9	10.0			9.7	(3)	9.4	9.3	9.0	8.9		8.7	8.0	7.4
Capitulum length	36.5	35.6	35.0	41.3						37.2	36.1	35.3		33.0	31.5	29.6
length prox M1	16.0	15.6	15.0	17.8	17.0	16.5				15.4	15.2	15.0		14.5	13.7	12.5
Depth M1 to dist	11.1	10.5	10.2	11.4	11.3	11.3				11.5	10.9	9.8		9.5	9.1	8.8
B. to dist	4.4	4.5	4.5	5.1	4.7	4.5				4.7	4.5	4.2		4.0	3.7	3.3
Radius length	56.2		54.6							56.3	52.0	50.7		49.8	47.5	45.0
length int	54.3		52.8							53.6	52.7	51.5		48.6	45.7	42.6
length to dist	52.8		52.1													
B. dist	12.4		12.3							11.1		9.3		9.3		8.5
B. prox	10.5		10.2							11.7		9.2		9.4		9.0
Depth to prox cot										9.2		7.6		7.7		6.3
Radius length	31.1	28.8	29.3	29.7						31.7	30.5	29.5		27.0	25.3	24.5

May 1960

[illegible]

Nov. 4, 1969

Skull for cran. length for snout-vent length for same

2633 28.8 30.6 7.1

2629 27.5

2671 25.7

length for snout-vent length

cran. 86.8

vc 72.9

2251 33.4

bracross ventral labial prominence

2180 34.2 35.7

2225 32.0

2333 39.8

2661 36.0

7.8-6x
Depth fault 5.0-55
4.0-4.8

	Scap	br	br bust	br bust	br bust	br bust	depth sh
Cedar	br	12.6	5.9	4.8	6.3	3.0	
15372							
15401	15410	14.2	6.1	5.2	6.4	3.1	
	from (2) Jashit	13.5	6.4	5.3	6.35	3.1	
	3402	13.5					
	Juliana 65120A	from El Taro Home					July 9, 1969
intending blue	hummer 5520	length 61.8	br prox 18.6				
	ulua V5519	g. length 26.6	length to tail cond 24.8				
	radius V5519	g. length 24.1					
	carpo V5518	length to 1/2	30.7				

Sept. 7, 1970

Cedrus Island measurements Daucella
compiled from previous records

Sept 7, 1970

Radius																			
	Length to back of int. tip	Length to int. tip sternal end	Br below fure, bust	HT tip fure bust	Br. fure bust		Humerus					Ulna				Radius			
							Int length	Br max	Br dist			gr length	Length to int. condyle Tubercle prominent	Br max condyle	Depth max fure decauron		gr length	gr depth shape	
R15373	43.2	45.2	5.1	5.3	7.0	15373	72.4	17.9	4.5		15373	29.0	26.3	6.5	9.4	15373	28.1	5.6	
15410L	45.1	46.6	5.75	—	7.4	15367	72.7	18.6			15372	31.5	28.2	6.9	9.9	15393	30.0	6.1	
15410R	—	—	5.9	6.0	7.4	15382		20.1			15398	31.7	28.0	6.8	10.3	15416	30.7	5.4	
15400	48.5	—	—	—	—	15389					15394	28.7	25.2	6.2	10.0				
Daucorhynchus xanthus																			
	Length	Depth	HT	Br							15395	30.9	—	6.7	—				
			M1	trach							15399	29.4	—	—	—	—			
15373	35.8	—	15.4?	5.6?							15415	29.4	26.4	6.5	—				
15391	36.0	10.2	15.7	5.6							15396	30.2	—	6.6	—				
15392	34.8	10.5	15.4	5.6							15412	28.3	25.4	6.3	8.9				
15410	33.4	11.1	15.5	5.45							15371	30.5	27.8	7.0	10.3				
15370	35.0	—	—	15.5							15414	31.3	27.5	7.2	—				
											15424	29.9	26.7	6.6	—				

May 1969 - compiled from
Caribbean ^{previous} charts ^{Maucalla (large)}
coral Large only

Maualla (large)

carpus

[illegible]

Humerus

	a	b	c	d	e								f						
	Br across pneus. at int. tub.	Depth from brisp surface to int. tub.	Distance from head to lower edge of int. tub.	Br pneus end	Dist from top int. tub to dist edge brisp extension	Ratio cd	Ratio bd	Ratio ec	length backing area	ht pect scan	gr br capit score	lent br capit score	Depth head (int.)	fb 70					
m. caly Typhlosum	19.5	10.2	11.1	19.75	10.25	1.95	51.7		6.9	2.9	3.6	2.1	7.65	75.0					
# 2576 Cor. bellina	8.4	9.4	11.3	18.8	9.8	2.22	50.0		6.25	3.0	3.9	2.0	7.8	80.8					
San Diego 7731	8.15	10.25	12.8	18.5	9.2		54.4		6.3	3.2	4.75	2.8	7.4	72.2					
uc 10 2345	8.1	10.3	11.7	19.1	9.9		53.9		6.4	2.9	4.7	3.0	7.4	71.7					
Cedros 15382	8.1	10.4	11.6	20.1	11.6	1.75	51.8				4.5	2.4	7.5	72.0					
15367	7.4	9.7	10.9	18.6	9.95	1.85	52.2				3.9	2.0	7.0	72.1					
15389	—	9.5	10.1	—	—						3.5	2.2	7.1	74.7					

Sept 14, 1969

COP

	a	b	c	d	e	f	g	Ratio											
	Radius	naucalla	depth	Pr	Pr	Pr	extent	Ratio											
	gr	gr	below	pen	dist	sh	some	ba	eb	ca									
	left	depth	head			mid	from												
V46016	31.4	6.4	4.8	5.3	5.3	2.8	8.6	20.4	75.0	15.3				X	2064	32.7	15372	31.5	
lacm																			
V2486	29.6	6.3	4.7	4.8	5.1	2.5	9.9	21.2	74.5	15.9				X	new no. 2 left	30.2	15373	29.0	
lacm																			
V2812	31.8	6.3	4.7	5.5	5.0	2.3	8.0	19.8	74.5	14.7				X	2543 25859	28.6	15388	31.7	
lacm																			
V2238	29.2	6.35	4.85	4.8+	—	2.8?	—		76.3					X	broken 2247	28.0	15394	28.7	
UCLA																			
V2270	26.9	5.6	3.9	4.4	4.2	2.1	9.6	20.8	69.5	14.5				V	2257	27.6	15398	30.9	
lacm																			
V2632	25.0	4.7	3.4	4.2	4.2	2.1	9.7	18.8	72.4	13.4				V	5519	26.1	15399	29.4	
V4519	24.3+	wom	3.8+	wom	wom	2.1	7.9?	(with ulna 26.2 length int. in ulna)						X	45853	25.1	15415	29.4	
V46030	25.2?	5.1	3.9	4.0?	—	2.4	—	20.2	76.4	15.4				X	6426	26.3	15396	30.2	
2274	—	wom	4.4+	3.3+	—	4.4	—	8.6+	67.4					X	2558	wom 24.5 out	15412	28.3	
2274	—	4.4+	3.3+	—	4.4	—	8.6+	67.4						X	45854	23.7	15371	30.5	
15442	24.2	4.5?						18.6						X	2342	23.6	15414	31.3	
1254	12.54													X	2494	26.2	15424	29.9	
Cedus																			
15393	30.0	6.1	4.8	5.0	5.3	2.6	12.3	20.3	78.6	16.0				Y	2552	24.7			
15373	28.1	5.6	4.5	4.6	5.1	2.9	10.2	19.9	80.3	16.0				X	2439	27.0			
15416	30.1	5.4	4.0	—	—	2.2	9.0	17.9	74.1	13.3				X	2323	28.7			
	4.82													X	2179	25.3			
	29.4													X	2079	24.1			
15369?														V	2484	25.7			
														X	2082	25.2			
														X	2883	wom 28.44 out			
														X	2485	24.4 out			

Truncella luvra
Nov. 16, 1969 Cedros

Truncella luvra
Nov. 16, 1969 Cedros

[illegible]

pure humerus

20	19	18	17
20.3	<u>19.6</u>	18.3	17.5
	19.2	18.9	17.3
	38.8	18.6	<u>17.3</u>
	87.8	18.2	17.9
	20.3	18.5	17.8
	<u>166.0</u>	18.7	87.8
2) 3129	18.2		
	18.2		
	<u>18.4</u>		
	166.40		

$$\begin{array}{r}
 18.4 \\
 17 \overline{) 3129} \\
 \underline{17} \\
 142 \\
 \underline{136} \\
 69 \\
 \underline{68} \\
 1
 \end{array}$$

$$\begin{array}{r}
 68 \\
 28 \\
 \hline
 96
 \end{array}$$

on earlier lists but
 not on 10.6.60 list
 humerus ditto only

6180 dit 7.1
 6181 6.1
 6486 5.1

2490 - 7.0

2080 dit 6.0

223 6.0

2296 dit 6.9

2066 dit 6.0

4556 6.7

45857 6.9

45846 6.0

45847 6.2

45848 5.7

2183 5.8

2332 5.0

2231 5.9

2084 5.0

2675 5.8

2644 6.4

25390 6.3

25390 6.3

2659 7.2

24810 6.7

24810 6.7

2685 6.9

2319 6.7

16	15	14
16.3	15.6	14.2
16.3	15.5	14.7
16.0	15.8	14.6
16.2	15.1	14.8
16.1	15.7	14.7
16.1	15.0	14.8
<u>16.2</u>	15.3	14.9
	15.5	14.9
1132	15.0	14.9
3690	15.7	14.4
2049	15.6	14.6
<u>456871</u>	15.8	14.6
	15.4	14.8
	15.6	<u>14.2</u>
	15.0	14.7
	15.3	<u>2049</u>
	15.2	
	15.4	
	15.1	
	15.6	
	15.2	
	15.0	
	15.0	
	15.7	

$$\begin{array}{r}
 14 \\
 5 \overline{) 70} \\
 \underline{50} \\
 20
 \end{array}$$

$$\begin{array}{r}
 15.3 \\
 45 \overline{) 6871} \\
 \underline{45} \\
 237 \\
 \underline{225} \\
 121
 \end{array}$$

$$\begin{array}{r}
 3490 \\
 28 \overline{) 978} \\
 \underline{56} \\
 418 \\
 \underline{408} \\
 10
 \end{array}$$

[illegible]

[illegible]

What

July 23, 1909

Mancala

60
54
58
58

52
348
30
u

05

Q. Q.

[illegible]

23.4 24.1 25.1 26.1 27.0 28.6 29.0 30.2 32.0

23.7 24.2 25.2 26.2 ~~27.9*~~ 28.6

~~23.9~~ 24.7 25.3 26.3 28.7

24.4 25.7 26.8 28.0

23.7 24.3 25.1 26.1 27.0 28.6 30.2 32.0

23.4 24.7 25.2 26.3 28.0

24.1 25.3 26.2 28.7

~~24.3~~ 25.7 26.3 28.7

~~24.3~~
25.2

* = fig 1949
LHM added
May 26, 1970
from father's own

		Cedrus	10.2	14.0	13.8	13.4	ulnae	radius	carpus	femur	Tibia	Tarsus	humerus	from radius to					
		capitulum												quinto v. c. after dissection					
2208	39.0	2536	10.3	2342	23.6	45842	24.2	2068	29.6	2848	45.0	2209	72.0	2462	31.1	2269	56.4	2208	65.0
45843	39.3	2259	10.3	45859	23.7	45819	24.3	45818	30.7	45821	46.0	2624	72.8	2548	32.5	2813	58.1	2216	65.1
44544	39.5	2292	10.3	2079	24.1	2632	25.0	45842	30.7	2508	46.7	2088	73.0	2488	34.6	2206	58.7	2480	66.1
2535	39.4	2536	10.5	2552	24.7	2555	25.5	2445	31.0	2024	47.0	2083	74.5	6454	35.8	45842	61.0	2850	66.5
2274	39.9	2536	10.7	45853	25.1	2497	25.2	2270	26.9	2281	31.7	2185	47.3	2478	76.5	2327	36.1	2096	61.2
2498	40.0	2536	10.7	2497	25.2	2270	26.9	2281	31.7	2185	47.3	2478	76.5	2327	36.1	2096	61.2	2281	66.6
2229	40.4	2270	10.8	2082	24.4	2484	29.6	5825	32.7	2543	48.9	2549	76.8	2499	35.0	2480	61.3	2281	71.0
2559	40.7	2270	11.0	2179	25.3	46016	31.4	45862	33.0	239	49.8	2345	77.5	2177	38.3	2679	61.3	2695	72.2
2338	40.1	2270	11.0	2179	25.3	46016	31.4	45862	33.0	239	49.8	2345	77.5	2177	38.3	2679	61.3	2695	72.2
2243	41.4	2270	11.0	2179	25.3	46016	31.4	45862	33.0	239	49.8	2345	77.5	2177	38.3	2679	61.3	2695	72.2
42028	43.5	2278	11.0	2497	26.1	26.2		45861	35.2	2345	51.1	2134	78.4	2178	43.6	2219	62.0	2480	74.6
2849	47.7	2090	11.3	6426	26.3			2542	35.6	2672	53.8	2177	80.8			2480	62.6	2304	78.7
2087	47.8	45832	11.5	2439	27.0			2060	36.0	2220	54.3	2550	82.2			2442	62.7	7731	80.4
2290	48.0	2045	11.8	2345	26.9			2541	37.1	2078	55.0	2294	91.4			2303	62.7	2670	85.2
2422	48.6	2506	11.8	45859	28.6					2477	56.3	2477	91.9			45845	62.8		74.5
2510	48.5	2044	12.2	2543	28.6			2249	25.07	57.0	2308	92.8				2292	63.1		81.2
2422	48.6	2176	13.1	2323	28.7						2125	93.1				2427	63.2		82.4
45863	48.8	2654	13.2	2544	29.0						46015	98.5				2082	63.2		
2067	50.0	2345	14.4	2078	30.2											2504	63.3		
2498	54.7	45860	14.4	2064	32.6											2553	63.4		
	49.1		13.5	2247	32.9											2096	63.7		
																2326	63.8		

Manuale
Tibetani Nov. 14, 1969

T. W. W.

[illegible]

a *Conaroides* Aug. 19, 1969

$$\begin{array}{r} 48.9 \\ 4 \overline{) 1959} \\ \underline{16} \\ 35 \end{array}$$
$$\begin{array}{r} 195.9 \\ 42.7 \\ 48.0 \\ 47.8 \\ \hline \end{array} \quad \begin{array}{r} 48.0 \\ \hline 3394 \\ 289 \\ \hline 36 \end{array}$$

48.5
394
28
59
564 h

[illegible]